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ABSTRACT

This report updates the labor market information available for planning vocational education programs at the local and regional levels in Pennsylvania. To help identify occupational shortages, the report provides supply and demand statistics and projected 1975 employment by occupation for the 15 major labor market areas in the state. Additional supply information is provided in breakdowns of vocational education graduates by region, occupation, and type of training received. (BH)

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Guidelines For the Use of Labor Market Information

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Guidelines For the Use of Labor Market Information

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Pennsylvania Department of Education
1970

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FOREWORD

State Departments of Education have played a key role in the administration and supervision of federally-financed vocational education since 1917. With the expansion of the federal programs in 1963 and 1968, they have been called upon to play a more important role in planning, financing and evaluating vocational education programs. This role includes the development of labor market information which helps local school districts and other occupational training agencies to establish better planning capacities or to cope with long-range planning problems.

This publication is representative of the role the Pennsylvania Department of Education has assumed in exercising leadership within the Commonwealth. It provides a set of new and relevant manpower supply and demand information that can be used to improve decisions regarding long-range planning of vocational education programs. Special attention has been paid to the recent production of vocational education graduates and the occupational training needs of the labor market areas in the Commonwealth.

The Bureau of Vocational, Technical and Continuing Education through the Division of Vocational Program Planning plans to continue the development of other types of relevant manpower planning data directed toward the improvement of vocational education program planning at all levels of operation. Efforts are under way to provide continual updating of the manpower information reported in this publication.

Comprehensive long-range planning has been emphasized in the Pennsylvania State Plan for Vocational Education. Part Two of the state plan includes supply and demand projections for future activities of vocational education in the Commonwealth. An earnest effort to assist educational agencies in the use of manpower supply and demand information continues as one of the primary functions of the Division of Vocational Program Planning.

It is anticipated that the information and suggestions in this publication will be instrumental in shaping vocational education throughout Pennsylvania.

John W. Struck, Director
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and Continuing Education

"An excellent plumber is infinitely more admirable than an incompetent philosopher. The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water." (John W. Gardner)

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CHAPTER ONE

INTRODUCTION

The recent literature on the emerging role of State Departments of Education (SDE's) clearly indicates that State Departments will be expected to exercise a position of leadership in effecting needed changes and improvement in education. Many studies indicate that State Departments should have specially developed planning data basic to their role in helping local school districts to establish better planning capacities or to cope with long-range planning problems. The data provided would also be useful to State Departments (1) in projecting their own planning, (2) in making annual (or more frequent) requests to legislatures, and (3) in supplying State Boards of Education with a source of information for making decisions about educational programs.

Educational planning specialists are in agreement that state educational planning agencies should serve as interpreters of important state and national studies which bear upon and have implications for educational planning. The Pennsylvania Vocational Education Study (PVES) provides an excellent example of how national and state studies can be used to generate planning data for local and regional areas.[1] National manpower requirements for the Seventies and current labor market information were analyzed to designate labor market demands to be satisfied by local vocational-technical education institutions.

The PVES provides an excellent methodology for analyzing supply-demand information in light of future program planning needs; however, the study has two shortcomings in terms of its current utility. First, the data in the study reflect only the supply-demand information for the one-year period ending June 30, 1967. Second, the study only published supply-demand data on a statewide basis. Supply-demand data for this time period were prepared on a county basis as a part of the PVES working papers; however, this data was not included in the final PVES publication.

The purpose of this publication is to improve upon the labor market information currently available for planning vocational education programs at the local and regional levels. This is accomplished by using the methodology set forth in the PVES to (1) update the supply-demand data by including statistics on all labor markets for the three-year period ending June 30, 1969 and (2) publish supply-demand information on a labor market area basis as well as for the statewide distribution.

This publication follows the original recommendations of the PVES which indicate that labor market information should be continually updated as well as improved to provide a better basis for decision-making

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[1]Walter M. Arnold (ed.), Vocational, Technical and Continuing Education in Pennsylvania: A Systems Approach to State-Local Program Planning, Harrisburg, Pennsylvania: Pennsylvania Department of Education, 1969.

at all levels. Further, this publication represents one example of how the Pennsylvania Department of Education has assumed the responsibility of exercising a leadership role in effecting needed changes and improvement in vocational education planning.

OVERVIEW OF THE PUBLICATION

The plan of the monograph is as follows. Chapters One and Two provide the narrative portion. The remaining portion of Chapter One addresses itself to the relationship of vocational education to human resource development. This discussion focuses primarily on the integration of educational and economic planning, particularly as it relates to occupational programs and labor market considerations.

Chapter Two deals with the application of the manpower-requirements approach in the Pennsylvania Vocational Education System. An overview of the current sources of supply and its corresponding demand in the Commonwealth is presented. The chapter includes a discussion of how local level vocational education planners can use supply-demand information to improve future program offerings, i.e., assess the relationship of current and planned programs to critical occupational shortages within the local labor market area.

Chapter Three contains an updated version of Table 97 in the PVES. This table presented the supply-demand posture for the state. Briefly, the table contained statistics on approximately 140 different occupations representing all occupational categories in the labor force. Since this table is available in the PVES (pages 196-200), no further discussion is entered here.[2]

Chapter Four contains a set of supply-demand postures for each of the 15 major labor market areas in the Commonwealth. These current statistics will be extremely useful to local program planners who, in the past, had to plan programs based on (1) "insufficient" labor market information at the local level or (2) manpower publications which contained only state and national trends.

It is a well established fact that in Pennsylvania better than 80 per cent of its labor force is contained in these 15 major labor market areas. A significant number of vocational education programs can also be found in these geographic regions. Hence, the chapter addresses itself to a major portion of the information needs of the local level personnel.

Chapter Five outlines selected statistics dealing with the supply of occupational education graduates from the various types of training institutions contained in the labor market area. Information such as

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[2]The PVES has been distributed to each chief school officer in the Commonwealth. It also has been deposited in over 700 libraries throughout the state and should be readily available.

that found in Tables 95 and 96 of the PVES (pages 183-187) is presented. This should provide local school district planners with an opportunity to acquire a new perspective on what might be called (for lack of more appropriate terms) a systems orientation to occupational education and human resource development.

THE SUPPLY-DEMAND CRITERION IN VOCATIONAL EDUCATION PLANNING

This section contains a review of the literature relating to labor market considerations in vocational education program planning. It provides the reader an overview of recent developments on the national level and a discussion of the extent to which a supply-demand criterion should be utilized in determining a policy for future program planning. Since the purpose here is of an informative rather than a technical nature, the review contains only a small selected set of references and should not be viewed as an exhaustive study of the current literature on the subject.

Kaufman and Brown note that "One of the basic principles underlying the Vocational Education Act of 1963 was that youth would be trained for occupations (supply) for which society has a need (demand)."[3] His review of the literature in the manpower supply and demand points out that (1) developments in manpower policy are currently made without sufficient support of research, (2) future planning in vocational-technical education can be improved if very detailed and accurate knowledge of the labor market developments are available, and (3) it is more realistic to plan and train for occupational clusters than for specific occupations. This latter recommendation allows greater flexibility and smoother adjustments of supply in response to changes in demand.

Woodhall, reviewing the literature on educational planning, comes to the following conclusion:

> The interdependency of the educational system and the occupational structure of the labor force has been so frequently emphasized that many countries, both advanced and underdeveloped, have drawn up detailed estimates of future manpower requirements which are used to determine the rate of expansion of secondary or higher education.[4]

Sanders and Barth, reviewing the literature on the relationship between educational policy and human resource development, note:

> Efforts to develop educational policy among human resource development lines typically assumed that the

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[3]Jacob J. Kaufman and Anne F. Brown, "Manpower Supply and Demand," Review of Educational Research, 38: 326; October 1968.

[4]Maureen Woodhall, "The Economics of Education," Review of Educational Research, 37: 391; October 1967.

> primary link between education and economic growth lay in the intervening manpower preparation, the process of preparing persons for the more complicated and sophisticated economic roles they would play in a more industrialized society.[5]

Harbison observes that "for analytical purposes it is necessary to have some definition in terms of both occupations and educational levels" if human resource development plans are to integrate educational and economic planning.[6] In this country, a recently developed publication, jointly sponsored by the Office of Education and Manpower Administration, provides educational planners and manpower analysts a method for linking the Office of Education Instructional Program Classification System and the Dictionary of Occupational Titles Classification and Code. The intent of the document is described in the foreword which states:

> The joint education and manpower responsibilities of the Department of Health, Education, and Welfare and the Department of Labor involve many common goals. . . . There has been a need for a common occupational language that would aid the cooperative efforts of both departments in relating education and the world of work. . . . By facilitating more efficient planning, this publication should make possible more realistic matching of educational output with occupational requirements.[7]

The PVES generates manpower supply and demand data which can be used as a guide by SDE's to develop future programs and to provide a guide for future resource allocation.[8] In this study, a methodology is developed for matching labor market requirements (demand) provided by the Department of Labor with the existing output of educational institutions having occupational training programs (supply). A similar approach, which attempts to estimate directly the manpower requirements by

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[5]Donald P. Sanders and Peter S. Barth, "Education and Economic Development," Review of Educational Research, 38: 217; June 1968.

[6]Frederick Harbison and Charles A. Meyers, Education, Manpower and Economic Growth: Strategies of Human Resource Development, (New York: McGraw-Hill Book Company, 1964), pp. 15-16. See also Russell C. Davis, Planning Human Resource Development: Educational Models and Schemata, (Chicago: Rand McNally and Company, 1966) and Jacob J. Kaufman (et al.), The Development and Utilization of Human Resources: A Guide for Research, (University Park, Pennsylvania: The Pennsylvania State University, The Institute for Research on Human Resources; July 1967), p. 47.

[7]U. S. Department of Health, Education, and Welfare, Vocational Education and Occupations, OE-80061, (Washington, D.C.: Government Printing Office; July 1969), p. v.

[8]Ibid.

vocational-technical skill categories and to provide quantitative information needed for educational planning, is outlined by Eckaus.[9]

Warmbrod's publication, which represents the most extensive review and syntheses of the research on the economics of vocational-technical education, clearly indicates that the costs and benefits of occupational education cannot be made independent of labor market considerations.[10] The fact that the labor market plays a significant role in research on the costs and benefits of vocational education appears in some more recent studies. For example, Hu compares the benefits of vocational and nonvocational education at the secondary level.[11] The criterion variable of this investigation is the labor market performance of non-college graduates. Kraft, in his conclusion about vocational education expenditures, notes:

> The author is a firm advocate of manpower planning and the rational adaption of our system of education and training to the needs of the economic system. It seems absurd to invest, annually, more than 40 billion in human capital without asking whether, from an economic standpoint, this money could not be allocated more efficiently. (Needless to say, we do not want to be interpreted as asserting that the only criterion to be used is the investment or productivity criterion. But it is obvious that unless the economic impact of education is to be given no weight at all, some form of manpower planning is both desirable and inevitable.)[12]

Kotz, summarizing the results of the famous U. S. Office of Education sponsored Airlie House conference, notes:

> The economic analysis of manpower demand and supply, including projections and their validity, is of great importance to vocational educators. . . . Among other

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[9]R. S. Eckaus, "Economic Criteria for Education and Training," Review of Economics and Statistics, 46: 183-184; May 1964.

[10]J. Robert Warmbrod, Review and Synthesis of Research on the Economics of Vocational Education, (Columbus: The Center for Vocational-Technical Education, The Ohio State University, 1967).

[11]Teh-wei Hu, Jacob Kaufman, Maw Line Lee and Ernest W. Stromsdorfer, A Cost-Effectiveness Study of Vocational Education: A Comparison of Vocational and Nonvocational Education in Secondary Schools, (University Park, Pennsylvania: The Pennsylvania State University, Institute for Research on Human Resources; February 1969).

[12]Richard H. Kraft, Cost Effectiveness: Analysis of Vocational-Technical Education Programs, Florida State Department of Education, Final Report, Project No. 569-124, (Tallahassee, Florida: The Florida State University, Department of Educational Administration, Educational Systems and Planning Center; July 1969), p. 116.

> labor market considerations, the educator must be concerned with trends in employment by occupational categories and by job family, skill requirements, the relationship between filled jobs and job vacancies as forecasts for the state or major metropolitan area, and the size of the existing work force to meet the demand.[13]

Based on the statements from the existing literature, it should be clear that the manpower supply and demand relationship in the labor force is a valid criterion which can be used as one measure to test the economic efficiency of current and future program development.[14]

The previous statement given by Kraft should be carefully studied. The reader should not misinterpret this review as asserting that the only criterion to be used in vocational program planning is the productivity of labor market criterion. On the other hand, it is quite clear that program planning cannot be considered totally effective without including some form of manpower planning which focuses on critical shortages that exist in the labor force. Other considerations for planning and expanding future vocational education programs can be found in numerous current writings on the subject. An excellent beginning might be the recent issue of the REVIEW OF EDUCATIONAL RESEARCH devoted to vocational, technical and practical arts education.[15]

THE MANPOWER-REQUIREMENTS APPROACH

The supply-demand criterion forms the basis for developing the manpower-requirements approach to vocational education program planning. This section attempts to outline such an approach. It includes a brief review of literature of value to local vocational program planners in formulating some strategy for integrating labor market statistics in their current developmental planning efforts.

Parnes briefly describes the manpower-requirements approach as follows:

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[13]Arnold Kotz, "Major Recommendation and Conclusions," in Arnold Kotz (ed.), Occupational Education: Planning and Programming, Volume One, (Menlo Park, California: Stanford Research Institute; September 1967), p. 23.

[14]The economic efficiency of resource allocation at the federal level also utilizes manpower criteria. This position is clearly stated in Leonard A. Lecht, Manpower Requirements for National Objectives in the 1970's, (Washington, D.C.: National Planning Association, Center for Priority Analysis, 1968).

[15]For example in this issue see Elizabeth M. Ray, "Social and Philosophical Framework," Review of Educational Research, 38: 309-325; October 1968.

> An attempt is made to foresee the future occupational structure of the economy and to plan the educational system so as to provide the requisite number of personnel with the qualifications which that structure demands.[16]

In a similar manner, Kraft suggests a two-step strategy for educational planning based on the manpower-requirements approach. These are:

> 1. A calculation of the future occupational structure of the labor force.
>
> 2. The translation of the labor requirements by occupational categories into requirements by educational qualification.[17]

More detailed outlines of the methodology of the manpower-requirements approach have been offered by Benson,[18] Goldstein,[19] Parnes,[20] and Harbison.[21]

The important points to be extracted from any outline of the manpower approach is that it provides the educational planner with (1) estimates of the required additions to the labor force during the planning period and (2) for each occupational category of the labor market estimates there exists an educational program. This provides the basis for indicating the required outputs (graduates) during the planning period,

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[16]Herbert S. Parnes, Forecasting Educational Needs for Economic Development, (Paris: The Organization for Economic Cooperation and Development, 1962), p. 15.

[17]Richard H. Kraft, "Inter-Firm Correlations: The Contribution of Educationally-Heavy Inputs to Increasing Profitability," in Richard H. Kraft (ed.), Education and Economic Growth: Proceedings of the First Annual Conference on the Economics of Education, (Tallahassee, Florida: The Educational Systems Development Center, The Florida State University, 1968), p. 123.

[18]Charles S. Benson, The Economics of Public Education, Second Edition, (Boston: Houghton Mifflin Company, 1968), pp. 67-75.

[19]Harold Goldstein, "Manpower Requirements and Educational Organization," in Organization for Economic Cooperation and Development, Organizational Problems in Planning Educational Development, (Paris: OECD, 1963), pp. 37-49.

[20]Herbert S. Parnes, "Assessing the Educational Needs of a Nation," in Don Adams (ed.), Educational Planning, (Syracuse: Syracuse University Press, School of Education, 1964), pp. 55-56.

[21]Frederick Harbison, "Human Resource Assessments," in United Nations, Educational, Scientific and Cultural Organization, Economic and Social Aspects of Educational Planning, (Paris: UNESCO, 1964), pp. 118-119.

which in turn permits the calculation of required enrollments, teacher requirements, and needed educational plant and equipment.

The relationship of the manpower-requirements approach to socio-economic planning, especially seen as an illustration of how local vocational education programs can contribute to the economic development of a specific geographic region, is described in the PVES.[22] Although this application discussed in this study uses a two-county area, it does demonstrate how local planners might view the long term consequences of structuring their programs to meet emerging economic needs.

A common criticism of the manpower approach is that a poor rationale currently underlies the fitting of educational preparation to occupational requirements in the work force. In the United States, this problem need no longer exist for vocational education planners. A common occupational language for the Department of Labor and the Department of Health, Education, and Welfare is currently available.[23]

A second criticism of the manpower approach to educational planning is that it focuses exclusively on economic criteria. In this regard, Parnes notes:

> To be sure the "manpower-requirements approach" alone cannot answer the question "how much education is needed," but it provides useful guides to the desirable structure of whatever educational expenditure is decided upon.[24]

Kraft suggests that the manpower criterion can be a significant but not exclusive factor in planning human resource development.[25] Burkhead notes "specific goals for a state's vocational education program, for example, can be outlined and these can be related to manpower requirements and needs for identifiable skills for several years ahead.[26] Finally, Culbertson, discussing educational planning based upon manpower requirements, mentions, "the planning techniques developed and used by economists in developing nations have utility in developed nations--especially in

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[22]Arnold, op. cit., pp. 203-259.

[23]See footnote 7 and the discussion which preceded it.

[24]Parnes (1962), op. cit., p. 15. See also Parnes (1964), op. cit., pp. 56-60, for an extended discussion of the value of the manpower approach and how it interacts with what he calls the "cultural approach."

[25]See Kraft's statement previously quoted and referenced in footnote 12 of this chapter.

[26]Jesse Burkhead, Public School Finance: Economics and Politics, (Syracuse: Syracuse University Press, 1964), p. 364.

relation to vocational education."[27] Hence, the literature purports to show that the manpower-requirements approach can be effectively utilized as a criterion to assist vocational education planners to evaluate current and projected programs.

SYNTHESIS

The intent of this chapter has been to (1) describe the nature and scope of the publication and (2) review the literature on the use of manpower information in vocational education program planning. Based on the review, it has been demonstrated that the supply-demand criterion represents a significant but not exclusive factor in planning vocational programs.

The approach to the review of the literature is somewhat academic in that footnotes and extensive quotes have been included. This approach is based on the assumption that the review would attempt to clarify some misunderstandings currently held about the issue of labor market considerations in vocational education program planning.

The supply-demand relationships for Pennsylvania are discussed in the next chapter. The guidelines developed in this chapter are used to explain the current manpower posture within the Commonwealth.

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[27]Jack Culbertson, "State Planning for Education," in Edgar L. Morphet and Charles O. Ryan (eds.), Designing Education for the Future: Planning and Effecting Needed Changes in Education, (New York: Citation Press, 1967), pp. 278-279.

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CHAPTER TWO

MANPOWER INFORMATION FOR VOCATIONAL EDUCATION PLANNING IN PENNSYLVANIA

The importance of utilizing manpower information to improve program planning in vocational education has been emphasized in the preceding chapter. The purpose of this chapter is to provide the background necessary for a detailed examination of the occupational education manpower supply and demand in Pennsylvania. Specifically, this chapter focuses on (1) an identification and brief description of each agency in Pennsylvania which supplies occupationally trained graduates, (2) a general discussion about manpower demand projections for the Commonwealth, and (3) a procedure for analyzing the manpower supply and demand information to determine the efficiency of present vocational education programs in meeting the labor market needs within the state.

THE SUPPLY OF VOCATIONAL EDUCATION GRADUATES

The source and quantity of occupational education graduates are essential factors in total program planning. These data are useful measures in determining the present status of occupational education and in assessing the training needs of the labor markets within the state. If the total annual supply is known, these data can be applied to the total annual manpower demand to obtain an estimate of the unmet needs each year. However, as quantitative measures they bear no direct relationship to program quality.

A complete analysis of the supply of occupationally trained graduates from preparatory programs involves the identification of all principal training agencies and their output of graduates by occupational areas. The agencies considered in this analysis are those offering preparatory programs for training students who will enter into full-time skilled employment upon completion of their program. Based on discussions with appropriate occupational educators, nine different agencies are included in the supply statistics. These are:

- Public Secondary Vocational and Technical Schools
- Community Colleges
- Private Trade and Technical Schools
- Private Business Schools
- State Trade and Technical Schools
- Manpower Development Training Programs
- State Retraining Programs

- Two-Year Programs in Four-Year Schools
- Private Junior Colleges

Other specialized training agencies have been contacted in an effort to determine their output of occupational graduates. Included are the correctional institutions, vocational rehabilitation, apprenticeship programs, community affairs, Appalachia Regional Development Commission, and privately endowed vocational schools. There are still other agencies and institutions which offer some types of occupational education programs, such as hospitals and a number of civic, religious, and social welfare organizations.

Several factors should be kept in mind in this analysis of trained manpower supply. First, no attempt was made to evaluate the quality of programs or equate the output of one or more types of institutions. For example, no claim is intended that a technician graduated from a public secondary school was exposed to the same level of instruction as that provided by a postsecondary institution. Of the agencies included in the analysis, the public schools and a few state-aided or privately endowed trade and technical schools offered occupational education at the secondary level. All other programs operated at the postsecondary level.

Secondly, for the purpose of this study, an occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. It was assumed that upon graduation the graduate was immediately available to enter the labor force in the occupation for which he was trained. Obviously, there is a certain amount of attrition, usually the result of graduates entering military service, college or other schools. Eninger states in his Report on Pennsylvania Data from a National Follow-Up Study of High School Level Technical and Industrial Vocational Graduates that:

> The great majority of Pennsylvania vocational program graduates go directly to work after completion of high school. For the three graduating classes (1953, 1958, 1962) combined, 77.3 per cent went directly to work, 5.1 per cent went to college, 15.6 per cent went into military service, and only 2.0 per cent continued in some type of trade and technical school. There is a steady decrease in the percentage that goes to military service after school.

A final factor has to do with the identification of a graduate. The data in this supply does not include those whose training was accomplished on-the-job or with a specific employer, including apprenticeship training. Neither does the data include those already employed who received training supplementary to their occupation.

The following narratives describe the major occupational education training agencies in Pennsylvania. They include the nine agencies or programs whose graduate data were used in this report and a tenth group whose output of graduates was relatively small. Each contributing agency is described in general; examples of each are cited. This should

provide program planners an opportunity to understand the interrelationships that exist among the various agencies. A better knowledge of the objectives and goals of other training agencies could provide a better basis for more comprehensive and systems-orientated program planning.

Public Vocational and Technical Schools

The contributing occupational education training agencies in this group are the comprehensive high schools, the area vocational-technical schools (AVTS), and the self-contained vocational-technical high schools usually operating in the larger cities. Most of the high schools in Pennsylvania are not comprehensive in the literal sense; many of them offer some kind of occupational education, oftentimes only office education. The truly comprehensive high schools in the state offer a variety of occupational programs, e.g., agriculture, home economics, office occupations, health services, distributive education, trade and industrial education, and technical education.

The area vocational-technical schools -- 40 operating in 1968-69 -- are a relatively new approach to occupational education in the Commonwealth. The course offerings in the area schools show much variation with an average of 22 courses being offered in each school. The average senior high school enrollment in the attendance area serviced by an AVTS is 5,100. The average student enrollment in an AVTS is approximately 900.

The majority of the area schools are operated as shared-time service centers apart from the high schools in the service area. A few of the new area schools are operating as full-time or self-contained centers at which a student receives both his academic and occupational training. The programs in the public schools are primarily secondary programs, but there are adult programs and some postsecondary programs in operation. The data on the postsecondary and adult students are not included in this report unless the program is truly preparatory.

Community Colleges

The Pennsylvania Community College Act was signed into law on August 24, 1963. The Community College in Pennsylvania is a two-year comprehensive collegiate institution designed to serve primarily the people who reside in the community area. It is expected to provide for the fullest possible development of the potentialities and capabilities of all interested individuals. This education is to be provided at low cost and easy access. Most of the present community colleges have been established on a county basis. However, several have been developed to serve multi-county areas. The recently approved Pennsylvania plan for higher education provides for the development of additional community colleges in the state.

Characteristically, community colleges offer comprehensive programs which include:

- o Transfer curricula (to four-year colleges and universities)
- o Occupational education curricula
- o General education curricula for cultural purposes
- o Community Service curricula
- o Developmental or remedial curricula

The concern of this study was only with the number of graduates from the occupational education curricula. In 1968-69, there were 12 community colleges in operation in Pennsylvania, all of which reported occupational education curricula. Occupational education programs were offered in the fields of business, agriculture, public service, and industry.

The Fall enrollment for Pennsylvania's Community Colleges for the school year 1968-69 was 30,600 students. Students attending Pennsylvania's Community Colleges ranged in age from 18 to 65 years.

The community colleges are becoming a substantial contributor of occupational education graduates by gearing their curricula to meet the occupational demands of the geographical areas they serve. The plan for higher education in Pennsylvania recommends that the community colleges devote about 70 per cent of their resources to occupational education. It is expected that in the future the total enrollment of the community colleges will greatly increase and that the major part of the increase will be in occupational education curricula. If the ambitious goals of the community college movement are realized, these institutions truly will become a prime source of skilled manpower.

Private Trade and Technical Schools

Private trade and technical schools are specialized schools, oriented toward industry's occupational training needs. They offer great variety and flexibility in their programs. Each program is designed with a particular occupational objective and often created to meet a particular need of industry in a given area.

The private trade schools in Pennsylvania are governed by the State Board of Private Trade Schools, which issues licenses to the schools and/or their agents. The board also approves the administrative, instructional, and supervisory staffs of these schools to establish and maintain acceptable standards of operation.

A private trade and technical school usually operates its programs with income from the tuition paid by students; therefore, a definite occupational need must exist before a program is established. It is a matter of economics whether a private trade school survives in an area. If the school is successful in securing jobs for its graduates, the likelihood

of the school's continued operation is good. When a school is unable to get jobs for its graduates, the school usually is discontinued.

Some of these schools offer short-term courses in specialized areas, but the data used in this supply study include only those who graduated from programs that are a year or longer in duration. The private trade and technical schools are making a substantial contribution to the trained labor force of Pennsylvania through occupational education at the postsecondary level. The private trade and technical schools have virtues, some of which the public programs might well emulate; namely, they admit students throughout a school year, they give the student rigorous in-depth instruction in a specialty, and they assure the student a job upon satisfactory completion of the program.

Private Business Schools

Legislation authorizing the licensing and regulation of private business schools, classes, and their agents was enacted in 1947 and amended in 1949. The enabling act also conferred powers and imposed duties upon the State Board of Private Business Schools. The objective of these schools is vocational preparation for graduates to a degree of competence necessary to hold entry level positions in office, sales, planning, and closely related business occupations.

In 1968, there were approximately 160 private business schools operating in Pennsylvania. These schools enrolled approximately 20,000 students with about 70 per cent attending full-time and 30 per cent in part-time or evening programs. Only the full-time trainees in programs of one year or longer were reported in this study.

The licensed private business schools in Pennsylvania may be classified into two groups, as follows:

1. Traditional General Business Schools. These schools offer one- and two-year full-time programs to recent high school graduates in the stenographic-secretarial, accounting, and business administration areas. Many of them offer part-time evening classes in their regular programs and in the specialties described below.

2. Specialty Business Schools. These schools usually offer programs of shorter duration, often in evening sessions or on schedules less than full-time. Currently the most common specialty is data processing; but there are other specialties such as sales training, tax accounting, CPA coaching, traffic management, comptometer training, and medical secretarial.

Although there is no official relationship between the office of the Secretary of the State Board of Private Business Schools and the Bureau of Vocational, Technical and Continuing Education, there have been some

informal conferences with the State Supervisors of Business Education and Technical and Industrial Education in the Vocational-Technical Bureau.

State Trade and Technical Schools

These training institutions divide themselves into three categories based on the source of financial support:

1. State-owned institutions

2. State-aided institutions

3. Foundation or trust supported institutions

The state-owned institutions are developed because of a specific need. The need is usually prompted by some group to assist students with socioeconomic or physical difficulties, e.g., orphans, deafness, etc. Some schools in this group began as private schools and later became state-owned. They are primarily secondary schools with some postsecondary offerings. The schools offer a variety of programs such as auto mechanics, beauty culture, carpentry, printing, and business education. The students also receive general academic training. The annual enrollment in these schools is about 500 with an average of 125 graduates each year.

The state-aided institutions are owned by the group or agency that originally established the school. The Commonwealth makes an annual appropriation toward the support of these schools. Additional income is obtained through invested endowments and gifts from alumni and friends. The program offerings are very similar to those in the state-owned institutions, and the enrollment and number of graduates approximate those of the state-owned schools.

The foundation or trust supported schools are very similar to the other two groups. The chief difference is that the former does not receive any state appropriations. These schools are operated at various grade levels, some offer elementary through secondary education, while others offer only secondary school programs.

The foundation or trust supported schools provide both academic and occupational education. The supply data in this group represents only the occupational education graduates, numbering about 200 annually from a total enrollment of less than a thousand. The program offerings are much the same as those in the state-aided and state-owned institutions.

All three groups serve students in Pennsylvania, with emphasis on the disadvantaged.

Examples of the three groups are listed below:

1. State-owned Schools

    a. Pennsylvania State Oral School of the Deaf

b. Scotland School for Veterans' Children

c. Thaddeus Stevens Trade School

2. State-aided Schools

a. Williamson Free School of Mechanical Trades

b. Berean Training School

c. Downingtown Industrial and Agricultural School

3. Foundation or Trust Endowed Schools

a. Milton Hershey School

b. Girard College

c. Patton Masonic School

Manpower Development and Training Act (MDTA)

The Manpower Development and Training Act (MDTA), established originally in March 1962, has been amended five times since. MDTA is a federal-state (90%-10% matching) cooperative training program designed to supply training to meet an expressed local manpower need, primarily for the unemployed and underemployed.

As a manpower supplier, MDTA contributes between 4,000 and 5,000 trainees into the labor force annually. This program offers two types of occupational training -- on a group basis and individual referrals. Group training is conducted primarily in public training facilities, e.g., area vocational-technical schools. There are 36 group training agencies and 51 individual institutions participating in Pennsylvania. There are also two out-of-state individual referral institutions.

MDTA offers training programs on a project basis in any job classifications where there are identified job opportunities. MDTA is a combined effort involving the Bureau of Vocational, Technical and Continuing Education in the Department of Education and the Bureau of Employment Security (BES) in the Department of Labor and Industry. When a need for occupational training is determined by BES, the MDTA administrative staff arranges for the implementation of institutional programs. On-the-job training programs are arranged for by the Pennsylvania Bureau of Employment Security.

Pennsylvania Vocational Retraining Act

The Pennsylvania Vocational Retraining Act provides state funds in excess of $500,000 annually for vocational training of recipients of public assistance and unemployment compensation. Recent legislation also

permits these funds to be used for training in the following categories:

1. Part-time workers not otherwise employed

2. Employed persons who are working below their skill levels and capacities.

Every training project must be initiated by a public school district and the Pennsylvania Department of Education. The initiating school district has full responsibility for the operation of the training project. The district can conduct the training in existing school facilities or through in-plant training or a work-experience program. The in-plant and work-experience training differs in that any production as a result of the former cannot be sold. In addition, trainees in the in-plant training must be segregated from the plant's production workers. When a work-experience type of program is in operation, with wages being paid, the product belongs to the plant and may be sold.

Programs operated under the State Retraining Act are established as a result of some specific need arising in a locality. Many times the need is prompted by new industry moving into an area or modernization of existing industries. The programs are a maximum of six months duration. A minimum of 30 hours of instruction must be conducted each week.

Presently, 87 projects are being operated by 37 public schools in the Commonwealth. The programs prepare approximately 5,000 trainees annually. Typically, trainees learn skills involved in such occupations as:

1. Power Sewing (Textile)

2. Production Machine Set-Up

3. Electronics Wireman

4. Knitting Machine Operator

5. Production Worker (Boot/Shoe)

New programs are being directed toward out-of-school youth and adults with special emphasis on the disadvantaged.

Two-Year Programs in Baccalaureate Institutions

Most two-year associate degree programs in baccalaureate institutions are offered at off-campus centers. There are 33 off-campus centers maintained by six baccalaureate institutions within the state. The Pennsylvania State University maintains 20, the University of Pittsburgh 4, Temple University 3, Indiana University of Pennsylvania 2, Edinboro State College 2, Clarion State College 1, and the University Center at Harrisburg which is maintained cooperatively by The University of Pennsylvania, The Pennsylvania State University, Elizabethtown College, Temple University,

and Lebanon Valley College. However, only three of the above (The Pennsylvania State University, Temple University, and The University of Pennsylvania) are reported as having awarded associate degrees in occupational education programs in 1967-68. The remainder of the programs offered in the off-campus centers are either less than associate degree occupational programs or transfer programs.

In 1968-69, 1,128 associate degrees were awarded in occupational education by the three aforementioned institutions. This number has been fairly constant since 1965-66; however, the establishment of community colleges in some areas has reduced the enrollments at the off-campus centers. Most of these programs involved training at the technical or semi-professional level in the fields of chemical and electronics technology and in other engineering related curricula.

Private Junior Colleges

A junior college is an institution which offers at least a full two-year postsecondary program. Upon completion of a program, the graduate is awarded an associate degree or other degree appropriate to a two-year program.

To receive an associate degree, the graduate must complete a minimum of 60 semester hours of credit. A minimum of 20 semester hours (within the 60) must be in general education. In addition to these requirements, a junior college may offer one or more of the following programs:

1. A broad general education for those not planning to continue their formal education.

2. A program of studies that parallels the first two years in a typical four-year baccalaureate curricula in a college or university.

3. An education on a technical or semi-professional level.

4. Courses in adult education.

There are 15 approved private junior colleges operating in Pennsylvania, down from 17 in 1965. Typical programs are offered in electrical or electronic technology, architectural or building technology, mechanical technology, and medical or biological laboratory technology. Business and Commerce-Related curricula constitute major training programs in many of the private junior colleges.

Other Agencies

The preceding narratives describe the major contributors of occupational education trainees in Pennsylvania. Other agencies in the Commonwealth that either directly or indirectly provide occupational training are described briefly as follows:

The Bureau of Vocational Rehabilitation located in the Pennsylvania Department of Labor and Industry, in cooperation with the Federal government, is charged with the responsibility of helping to rehabilitate and prepare handicapped individuals for gainful employment. All Pennsylvania citizens who possess a disability (employment handicap) are eligible for vocational rehabilitation.

The rehabilitation program focuses on the disabled person as an individual. The Bureau of Vocational Rehabilitation provides each disabled person with physical examinations and restoration, vocational counseling and guidance, artificial appliances, academic and/or vocational training, maintenance, occupations equipment, and job placement as required in the rehabilitation process.

It should be noted that the Bureau of Vocational Rehabilitation is not a training agency but provides payments for training. The training may be conducted in agencies such as those cited in this report.

The Pennsylvania Apprenticeship and Training Council is the governmental agency responsible for approving and registering apprenticeship programs in the state. The Council was established in 1961 and was placed under the Secretary of the Department of Labor and Industry. The Council is composed of 11 members representing labor, management, and the public sector.

Apprenticeship is training for those occupations (commonly known skilled crafts or trades) that require a wide and diverse range of skills and knowledge. Apprenticeship is a business-like system in which the young worker entering industry is given thorough instruction and experience on-the-job in all the practical and theoretical aspects of the trade.

Presently, there are approximately 3,000 registered programs in Pennsylvania with 10,000 apprentices. The Pennsylvania Apprenticeship and Training Council does not have jurisdiction over any training institutions nor does it administer training programs. These responsibilities lie with the local program sponsor, usually a joint apprenticeship committee (JAC) composed of labor organizations and employer representatives.

Summary Note

The preceding are principal occupational education institutions and/or agencies in Pennsylvania. Future analyses should attempt to correct this void. Chapter Five of this monograph is devoted exclusively to an analysis of the interrelationship of these training agencies. The various tables in that chapter specify the actual supply of graduates contributed by each agency. Since these statistics are further subdivided by geographic regions (i.e., counties and LMA's), they should be extremely valuable to the local level program planner.

THE DEMAND FOR TRAINED GRADUATES

The requirements for reliable information about future levels of occupational labor demand have grown rapidly since the passage of the

Manpower Development and Training Act of 1962 and the Vocational Education Act of 1963. In fact, the needs have mushroomed more rapidly than have successful efforts to satisfy them.

Several types of information are presently provided to vocational educators by the various government agencies. These are described in Young and are not repeated here.[1] Current labor market demand information, however, has been of limited value for local level program planners for a number of reasons. For example, up to this point in time, planners have had to plan programs based on (1) "insufficient labor market information at the local level or (2) manpower publications which contained only state and national trends. To allow planners to design program revisions based on local and regional information, this monograph provides demand projections for each of the major LMA's in the Commonwealth. Since the primary focus of this publication is to provide demand projections, only a brief description of the methodology for forecasting these demands is presented. This can be found in the next section of this chapter. More specific details on the methodology are available in a technical report on file in the Department of Education.

At this juncture, a few comments about the availability of demand information within the Commonwealth seem in order. First, the projections in this study are not designed to become a "final word" on manpower needs. They do not replace judgment on the part of the program planner. Rather, they are designed to improve the knowledge base upon which current decisions about vocational programs are made. This leads to a second consideration.

These projections represent only one input into the program planning decision-making structure. Since the tables in the following chapters attempt to assess labor market demands across all types of occupations in the labor force, specific details about any particular occupation (or cluster of occupations) are minimized. For example, demand for medical and dental technicians does not expressly list the occupational needs for specific technical personnel in this area (such as a critical shortage of X-ray technicians, radiation therapists, surgical technicians, etc.). Continuing our example. . . if the demand forecast indicates a critical shortage of medical and dental technicians in a specific Pennsylvania LMA and a particular school wishes to provide a new program in this area, then additional planning information is necessary. In this case, the Hospital Education and Research Foundation of Pennsylvania could provide the local level program planner with more detailed information on manpower demand.[2] Similarly, if a particular

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[1]Robert C. Young (ed.), Manpower Information for Vocational Education Planning, (Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University; November 1969).

[2]Hospital Education and Research Foundation, Pennsylvania Hospital Manpower Demand, 1968, (Camp Hill, Pennsylvania: HERF, 1969).

school district found that the statistics in this publication point to a shortage of trained graduates in off-farm occupations in their LMA, then the district might review a publication devoted to an in-depth analysis of manpower demands in this occupational cluster.[3]

The point should be clear. Demand projections such as the ones in this study provide a "first indication" that additional planning information should be gathered prior to the development (or expansion) of a particular occupational program. Hence, the projections do not make decisions but rather allow a program planner to make judgments about the necessity to start a new program and also to collect more extensive information. In this regard, the Bureau of Vocational, Technical and Continuing Education (BVTCE), specifically its Planning Division, could be consulted. They are currently prepared to provide additional information in this area for local level program planners and should be consulted for planning advice. Many additional statistics (relevant for program planning) not published in this report are available within the Planning Division. Such additional statistics tend to focus on local level information.

In the next section, the methodology for projecting labor market demand information and a discussion on the relationship of supply-demand data for determining unmet labor market needs within the Commonwealth are presented.

RELATIONSHIP OF MANPOWER SUPPLY AND DEMAND

The methodology for making quantitative projections of supply-demand relationships can best be described as rather primitive. As a consequence, many attempts to make employment projections for future periods of five years or more have missed the target. Wolfle identifies two methods of forecasting professional employment demands that have been used for some time:

1. The statistical projection of past and present information, adjusted by whatever assumptions were thought to be reasonable to establish a trend for the future;

2. Asking employers how many employees in certain occupational classifications they expected to have on their payrolls at some future date and adding up their replies.[4]

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[3]For off-farm occupations and their corresponding demands, the district could examine the research provided by Norman K. Hoover (et al.), Off-Farm Agricultural Occupations in Pennsylvania: Employment Opportunities and Technical Education Needs, (University Park, Pennsylvania: The Pennsylvania State University, Department of Agricultural Education, 1966) and other related publications from the same agency.

[4]This discussion is based on the article by Dael Wolfle, "The Manpower Prophets: Improving Employment Projections," The Employment Service Review, 4: 8-9; August-September 1967.

Although efforts have been made to refine both methods, neither one is wholly satisfactory.

Dr. Wolfle cited several factors that are important in determining the demand:

- Certainly, first to consider are the numbers of positions or the requirements for stated kinds of services.
- The way in which work in a field is organized. This is especially important in fields of work such as the health and technician occupations.
- In many fields, the supply available helps to determine the demand. If we have plenty of technicians, we find ways to use technicians.
- An increase in knowledge and skill in a field often brings about an increased demand for the services offered by professionals in that field.
- Significant new knowledge in a field is likely to lead to a marked increase in the demand for persons with that knowledge.
- Major social or political decisions that suddenly increase the demand for professionals of a given category. An example of this would be the advent of Medicare and Medicaid under Social Security which created a sharp increase in the demand for all kinds of trained workers in the health field.

Dr. Wolfle drew the following conclusions on the interacting supply and demand variables:

> Some of the decisions that determine supply and demand are made by individuals when they make educational or vocational choices or when they decide to accept or reject a new job. Other decisions are made as deliberate acts of national policy. Still others come as consequences of a new development or an increase in knowledge.
>
> To combine the multiple factors that determine supply and demand into an effective analytical model will surely require us to go far beyond the tallying of employers' estimates and the statistical projections of trends.
>
> In addition to efforts to develop a manpower model that will necessarily be complex and difficult, other studies will be needed to provide the additional data the model will require.

> Manpower trends should be examined from the economic point of view, for surely economic factors are involved. They also need to be examined from the psychological or sociological point of view, for certainly psychological and social factors are involved. Economists, sociologists, and psychologists have all studied manpower trends and problems; but most of their studies have been conducted from the point of view of a single discipline. When each works alone, important aspects are overlooked. They will continue to be until economists, psychologists, and sociologists learn each others languages and learn how to work together.

The foregoing describes the complexity of supply-demand relationships in making manpower projections. In order to develop some useful projections, it was decided to use the statistical projection method. A matrix for making such projection, developed by the Bureau of Labor Statistics, U. S. Department of Labor, is used to make the Pennsylvania projections to 1975.[5]

The fact that no single acceptable methodology exists does not diminish the need for a fairly reliable statistical base of manpower supply and demand upon which to evaluate and plan vocational education programs. This manpower and training data for Pennsylvania is, therefore, a significant breakthrough. The theory and mathematical development of this procedure is not beyond constructive critical examination. However, continuous improvement can be anticipated by the input of 1970 Census data and reevaluation of withdrawal, growth, and supply data relevant to the year of that input.

Methodology Used for the Supply-Demand Postures

The tables in Chapters Three and Four have been appropriately labeled supply-demand postures since they attempt to show the relationship between labor market demand and the supply of trained graduates in the different occupations. The methodology for the construction of these supply-demand postures is briefly outlined below. Table One from Chapter Three is used in conjunction with this explanation. The same methodology is used to derive the supply-demand postures for each major LMA in the Commonwealth. These postures are presented in Chapter Four.

The entries in Column One of Table One are the official 1960 Bureau of Census data reported and published by the U. S. Department of Commerce. As stated previously, the projected 1975 employment figures in Column Two are based on a methodology provided in the U. S. Bureau of Labor Statistics' publication, Tomorrow's Manpower Needs. The methodology is based on an occupational matrix reflecting changes to 1975 in

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[5]U. S. Department of Labor, Tomorrow's Manpower Needs: National Manpower Projections and a Guide to Their Use as a Tool in Developing State and Area Manpower Projections, Bureau of Labor Statistics, Bulletin No. 1606, (Washington, D.C.: U. S. Government Printing Office; February 1969). The same method was employed in the original Pennsylvania Vocational Education Study.

occupational staffing patterns caused by economic, technological, and demographic developments. This methodology was adapted by the Labor Market Information Section, Research and Statistics Division, Pennsylvania Bureau of Employment Security, to the Pennsylvania industrial and occupational structure and to trends in its economy. Stated simply, the projected 1975 employment figures in Column Two are a product essentially of the following procedure: Multiplying the 1960 state percentage distribution of selected occupations (Census) by the pattern of national change factor to develop the 1975 percentage of occupational density and then applying this percentage, modified in light of the Pennsylvania situation, to projected total employment in Pennsylvania in 1975.

In essence, these figures represent anticipated employment in these selected occupations in 1975. They represent net growth between 1960 to 1975. They do not represent, nor should they be interpreted as representing, total demand or total replacement needs which would be considerably higher than net changes.

The estimates in Column Two are on the conservative side assuming a high level of employment. This judgment is upheld by analysts from the Bureau of Employment Security. It must be remembered that these data are to be used only as guides or tools and that the trend is the important thing since numerical accuracy is dependent at this time on many unknown factors.

For vocational education planning purposes, net growth figures are insufficient. Estimates of annual demand are necessary. The figures in Column Five represent this annual demand. These estimates reflect not only natural growth due to population and economic changes but also requirements for replacements necessitated by turnover due to deaths, retirements, promotions, transfers, quits, etc.

There is no direct arithmetical relationship, nor was one intended, between the project 1975 employment in Column Two and the annual demand figure in Column Five. They represent two separate, distinct entities.

The method used to calculate the annual demand is a straight line projection. Per cent factors for annual withdrawal and annual growth are derived by using guidelines provided in Tomorrow's Manpower Needs. Each of the two factors was applied to the 1960 Census to derive the figures in Columns Three and Four respectively. The sums of figures in these two columns equal the figures in Column Five. For example, in Table One the annual withdrawal and annual growth for draftsmen are 717 and 1,262. Hence, the annual demand for draftsmen in Column Five of Table One is 1,979, which represents the total of these two entries. Since the supply-demand posture is calculated for a three-year period, a three-year demand projection is given in Column Six. This is calculated in a linear fashion by multiplying the annual demand by three. Therefore, the three-year demand for draftsmen is 5,937.

The supply figures in Column Seven are the number of vocational graduates (new entrants into the labor force) from the nine different agencies previously described. Supply figures represent the total number

of graduates for the three-year period ending June 30, 1969. Continuing with our example of the draftsmen in Table One. . . the total number of draftsmen trained in Pennsylvania for this three-year period is 6,760. Below is the distribution of the supply of draftsmen by type of training agency.

Public Secondary Schools	3,592
Community Colleges	156
Private Trade and Technical Schools	1,702
Private Business Schools	---
State Trade and Technical Schools	44
Manpower Development Training Programs	340
State Retraining Programs	---
Two-Year Programs in Four-Year Schools	877
Private Junior Colleges	49
Total	6,760

Hence, each entry in Column Seven represents the total number of graduates for that occupational category. Statistics on the distribution of the supply of graduates by type of training agency for each occupational category can be found in Chapter Five (See Table 21).

Column Six, the three-year demand, minus Column Seven, the three-year supply of vocational graduates, equals Column Eight, the unmet demand for the three-year period. A negative entry in this column indicates that the supply of graduates exceeds the corresponding demand. Conversely, a positive entry indicates that the supply has not met the projected demand. Large positive values indicate occupations in which there presently exists a critical shortage of trained graduates for the labor force. Following through with our example of draftsmen, the appropriate entry in Column Eight indicates that the supply exceeds the demand.

A Note on Limitations

The reader should read carefully the comments which appear below the last entry in Table One. The reader should especially note the remarks pertaining to Column Seven which indicate that an occupational education graduate is considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate, or professional degrees. Therefore, inferences drawn about occupational categories where this type of graduate satisfies labor market needs (i.e., a large number of the occupations in the Professional, Technical, and Kindred categories)

should not be made without appropriate information on degrees awarded by four-year colleges and universities and other professional schools.

Obviously, other methods of calculating annual demand could have been adopted. The fact is that no one knows which of any methods of calculating projections is the most accurate, and this will not be known until some time in the future when projections can be checked against a new set of actual figures such as the 1970 Census data or future labor market reports. The principal difficulty in the past has been that no useful manpower projection data have been available in Pennsylvania. It is expected that these data and the methodology used will be rechecked and updated periodically with a view toward continuous improvement of reliability.

THE USE OF SUPPLY AND DEMAND DATA IN LOCAL LEVEL PROGRAM PLANNING

It has been previously emphasized that the information in the supply-demand postures are to be used as guides rather than as absolute "nose" counts. It is hoped that this information (especially Column Eight, the unmet demands) will give some guidance to state and local education planners in regard to relative demands in each of the occupations.

It has also been established that these statistics do not replace judgment on the part of local program planners. They will need to bias manpower information provided in this publication with locally developed or known data. The examples of the medical technicians and the off-farm occupations given earlier in this chapter (see page 21) illustrate this point. These sources of information will then form the basis for evaluating the direction of existing and planned programs.

Column Eight in each of the supply-demand postures represents the shortage (or excess) of trained graduates for the three-year period ending June 30, 1969. A first approximation of the annual unmet demand could be obtained by dividing the entry in Column Eight by three. If occupational programs are not expanded, this annual unmet demand projection would remain relatively constant over time.

Of primary importance to the local level planner is the documentation of unmet labor market needs for the geographic region in which his vocational education programs operate. Using the information found in Column Eight of the appropriate table, the local level planner could do the following:

1. Determine the occupations for which his program currently does or does not supply trained graduates.

2. For those programs currently operational, determine the relationship of the supply to the demand (i.e., not if the supply exceeds or falls short of the projected demand). Based on this analysis, prepare a tentative plan for the expansion or reduction of enrollments in existing programs.

3. For those occupations where no corresponding programs exist and there is a critical occupational shortage identified, list potential new programs which the school may wish to establish.

4. The outcomes of two and three above provide a list of candidate solutions for future directions of the vocational education programs. At this point, additional labor market data, as well as other decision-making information, should be gathered to aid in the final decision about future program directions.

The point should be clear. Supply-demand postures represent a point of departure from which additional planning information should be gathered to improve the information base for future program development decisions.

The value of the supply-demand postures developed in this publication can best be seen in the following example. First, assume that local level public school program planners in a given LMA had only the demand projections for any given occupation and had no knowledge of the corresponding supply of trained graduates from the other eight agencies. Second, for a particular occupation the annual demand is for 500 trained graduates, and only one public school in the LMA trains students to enter this occupation. If the output of that one school was 50 graduates per year, then the unmet demand can be calculated as follows:

Labor Market Demand	500
Supply of Trained Graduates from School One	50
Unmet Demand	450

Based on this limited information, four additional schools in the LMA decided to initiate programs having the following number of graduates annually.

Supply of Trained Graduates	
School Two	50
School Three	25
School Four	50
School Five	30
Total	155

To simplify the case, assume further that the occupational program question is only a one-year program. At the close of the following year, the supply-demand posture can be calculated as follows:

Labor Market Demand	500
Supply of Trained Graduates	
School One = 50	
School Two = 50	
School Three = 25	
School Four = 50	
Schcol Five = 30	
Total Supply	205
Unmet Labor Market Demand	295

Now, if the annual supply of trained graduates from the other eight types of training agencies for the occupation illustrated here was 400, the true supply-demand posture for the previous year would be:

Labor Market Demand	500
Supply of Trained Graduates	
School One = 50	
Other Agencies = 400	
Total Supply	450
Unmet Labor Market Demand	50

The true supply-demand posture for the current year would then reflect an excess (negative number) which is calculated as follows:

Labor Market Demand	500
Supply of Trained Graduates	
Public Schools = 205	
Other Agencies = 400	
Total Supply	605
Unmet Labor Market Demand	-105

Thus, the example illustrates that failure on the part of the public school planners to recognize the supply of graduates from other training agencies in the LMA could easily result in overtraining in certain occupational areas while overlooking possible critical shortages in other occupations. The same principle would apply for any of the agencies who choose to ignore in their planning the contribution of trained graduates from other sources.

Fortunately, the supply-demand postures developed here include the supply contributions of all major training agencies. Hence, the unmet demands provided in Column Eight of the various tables represent unmet demands which are not currently satisfied by any training agency in the LMA. For this reason, they represent practical guidelines for use in developing future occupational programs in any agency. Further, when yearly revised statistics are used to update the unmet demand (and by extension an annual unmet demand estimate), each agency will have a continuing performance record of the entire system composed of contributions of all agencies.

SUMMARY

In this chapter, the application of the manpower-requirements approach to the vocational education programs within the Commonwealth has been explained. An overview of the current sources of supply and its corresponding demand has been presented. The chapter includes a discussion of the methodology used to derive the supply-demand postures and concludes with an illustration of how local level program planners can use this information to improve future program offerings; i.e., assess the relationship of current and planned programs to critical occupational shortages with the LMA.

The remaining chapters are devoted to a presentation of the various supply-demand postures and other selected statistics dealing with the supply of occupationally trained graduates.

CHAPTER THREE

A SUPPLY/DEMAND POSTURE FOR PENNSYLVANIA

In this chapter, the supply-demand posture for the state is presented. The explanation of the supply-demand posture and a discussion of how this information can be used by local vocational education planners can be found in Chapter Two. Since an accurate interpretation of this information is dependent on a thorough understanding of the scope and limitations of the data, the reader should review Chapter Two before starting to analyze the data presented in this chapter.

As the title of Table 1 indicates, the supply-demand posture developed for the Commonwealth covers the supply and demand statistics for the three-year period ending June 30, 1969. The past performance of the vocational education system in the Commonwealth provides an excellent guideline not only to evaluate the past but also to form a basis for modifying existing programs and developing new ones to meet critical occupational shortages in the labor market. For example, if it is assumed that the current level of enrollments in all occupational education programs remains constant, then vocational education planners can be certain that the critical occupational shortages documented in Table 1 will persist. Further, if this assumption is true, planners can be equally certain that, in specific occupations for which the educational programs of the state appear to be producing a supply of new entrants in excess of the demands of the labor market, the excess will also persist. The reader should pay particular attention to the discussion on page 27 which illustrates how the results in Column Eight (Unmet Demand) can be converted to an annual estimate of unmet demand.

The numbers in the left column of Table 1 are the appropriate Dictionary of Occupational Titles Classification and Code for each occupation specified in the table. The relationship of each occupational category to the corresponding vocational education program can be found in Table 28 in Chapter Five. This information allows the reader to transform labor market demands into the corresponding vocational education program using the U. S. Office of Education Instructional Program Classification System. (See the discussion related to this transformation on page 4). Since the data in Column Seven lists only aggregate totals for supply of graduates, the reader is also encouraged to examine the tables in Chapter Five which provide more extensive information on the supply of graduates. For example, Table 21 shows the distribution of graduates for each occupation by type of training institution.

Based on the analysis in Table 1, it can be stated with considerable confidence that in 1975 Pennsylvania will have about 5,000,000 persons gainfully employed; that approximately 192,000 persons will withdraw from the labor force each year; that 66,000 new job openings will occur each year; that 259,000 job vacancies will exist annually and that the average current annual supply of vocational education graduates is 80,000 (See the grand totals in Table 1).

TABLE 1

PENNSYLVANIA MANPOWER AND TRAINING DATA

State-Wide Totals
July 1, 1966 to June 30, 1969

T DE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	4,127,208	5,022,000	192,595	66,561	259,156	777,468	241,593	535,875
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	441,149	710,500	21,219	28,849	50,068	150,204	35,626	114,578
	Engineers, Technical	53,750	96,200	2,405	3,848	6,253	18,759	2,199	16,560
2	Engineers, Aeronautical	723	900	22	36	58	174	20	154
8	Engineers, Chemical	3,065	4,900	122	205	327	981	272	709
5	Engineers, Civil	7,713	12,900	326	516	842	2,526	378	2,148
3	Engineers, Electrical	11,016	20,800	520	804	1,324	3,972	233	3,739
2	Engineers, Industrial	7,528	15,600	390	624	1,014	3,042	34	3,008
7	Engineers, Mechanical	9,838	16,500	412	660	1,072	3,216	121	3,095
1	Engineers, Metallurgical	3,358	5,500	137	242	379	1,137	103	1,034
0	Engineers, Mining	648	500	12	17	29	87	-	87
	Engineers, Sales	4,756	7,100	177	284	461	1,383	34	1,349
	Other Engineers Technical	5,105	11,500	287	460	747	2,241	1,004	1,237
	Natural Scientists	9,122	18,200	455	728	1,183	3,549	912	2,637
0	Agricultural Scientists	265	400	100	16	116	348	704	-356
1	Biological Scientists	508	1,300	32	52	84	252	-	252
2	Chemists	6,630	12,700	229	508	737	2,211	-	2,211
4	Geologists & Geophysicists	320	400	10	16	26	78	-	78
0	Mathematicians	332	900	22	36	58	174	-	174
3	Physicists	896	1,900	47	76	123	369	-	369
	Other Natural Scientists	171	600	15	24	39	117	208	-91
	Technicians Excl. Medical & Dental	31,033	56,000	1,736	2,520	4,256	12,768	8,498	4,270
7	Designers	3,984	7,500	225	300	525	1,575	607	968
6	Electrical & Electronic	5,732	10,900	272	545	817	2,451	7,184	4,733
3	Radio Operators	1,013	1,300	32	39	71	213	2	211
8	Surveyors	1,985	3,300	82	132	214	642	90	552
	Technicians, Other	18,319	33,000	1,125	1,504	2,629	7,887	615	7,272
	Medical, Other Health Workers	90,660	157,400	4,879	6,296	11,175	33,525	5,002	28,523
	Chiropractors & Therapists	3,257	4,900	137	205	342	1,026	11	1,015
2	Dentists	5,873	8,300	207	332	539	1,617	-	1,617
7	Dietitians & Nutritionists	1,597	2,100	84	94	178	534	272	262
5	Nurses, Professional	40,611	67,600	1,919	2,528	4,447	13,341	878	12,463
9	Nurses, Student	7,626	16,600	664	664	1,328	3,984	53	3,931
9	Optometrists	933	1,700	42	68	110	330	-	330
1	Osteopaths	447	1,900	47	76	123	369	-	369
4	Pharmacists	5,869	6,600	165	264	429	1,287	-	1,287
0	Physicians & Surgeons	15,459	24,000	600	1,008	1,608	4,824	-	4,824
5	Psychologists	741	2,100	58	88	146	438	-	438
9	Technicians, Medical & Dental	7,672	20,600	931	929	1,860	5,580	3,788	1,792
3	Veterinarians	575	1,000	25	40	65	195	-	195
	Teachers	105,708	149,900	5,696	6,145	11,841	35,523	623	34,900
2	Teachers, Elementary	53,341	62,700	2,836	2,719	5,555	16,665	-	16,665
1	Teachers, Secondary	33,104	52,500	1,785	2,000	3,785	11,355	-	11,355
9	Teachers, Other Excl. College	8,951	15,500	480	620	1,100	3,300	623	2,677
0	Teachers, College	10,312	19,200	595	806	1,401	4,203	-	4,203
	Social Scientists	2,169	3,700	92	148	240	720	65	655
0	Economists	937	1,300	32	52	84	252	-	252
0	Statisticians & Actuaries	1,121	2,200	55	88	143	429	-	429
9	Other Social Scientists	111	200	5	8	13	39	-	39
	Other Prof., Tech., & Kindred Workers	148,707	229,100	5,956	9,164	15,120	45,360	18,327	27,033
0	Accountants & Auditors	27,920	38,700	967	1,548	2,515	7,545	-	7,545
1	Architects	1,505	2,000	50	100	150	450	44	406
7	Draftsmen	18,407	28,700	717	1,262	1,979	5,937	6,760	-823
0	Lawyers & Judges	9,392	12,800	320	512	832	2,496	-	2,496
6	Personnel & Labor Relation Wkrs.	5,739	9,800	245	392	637	1,911	-	1,911
5	Social & Welfare Workers (N.E.C.)	5,868	11,000	442	483	925	2,775	57	2,718
	Prof., Tech., Kindred Workers	79,876	126,100	8,215	4,867	8,082	24,246	11,466	12,780
1	FARMERS AND FARM WORKERS	98,764	74,000	2,590	-1,332	1,258	3,774	4,147	-373
5	MANAGERS, OFFICIALS & PROPRIETORS	290,385	363,000	9,801	-1,597	8,204	24,612	4,156	20,456
0	CLERICAL & KINDRED WORKERS	591,172	812,500	28,437	19,500	47,937	143,811	131,113	12,698
7	Accounting Clerks & Bkprs.	45,745	56,700	1,814	1,417	3,231	9,693	26,261	-16,568
2	Bank Tellers	8,377	14,200	482	340	822	2,466	27	2,439
1	Cashiers	26,664	50,300	1,911	1,207	3,118	9,354	458	8,896
9	Office Machine Operators	18,846	43,600	1,831	1,308	3,139	9,417	10,162	-745
2	Postal Clerks	13,278	13,300	345	319	664	1,992	-	1,992
7	Receptionists	6,809	9,800	392	294	686	2,058	806	1,252
1	Secretaries	91,883	138,500	5,817	4,432	10,249	30,747	41,897	-11,150
2	Shipping & Receiving Clerks	23,727	23,300	605	559	1,164	3,492	281	3,211

TABLE 1-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	18,060	27,200	1,142	870	2,012	6,036	5,391	645
223	Stock Clerks & Storekeepers	20,921	39,700	1,588	1,191	2,779	8,337	434	7,903
235	Telephone Operators	21,335	22,900	1,030	480	1,510	4,530	1	4,529
203	Typists	31,579	47,000	2,115	1,081	3,196	9,583	15,607	-6,024
209	Other Clerical & Kindred Workers	263,948	326,000	9,365	6,002	15,367	46,101	29,788	16,313
250	SALES WORKERS	306,840	388,700	12,058	4,664	16,722	50,166	9,943	40,223
258	Advertising Agents & Salesmen	1,581	2,300	64	34	98	294	9,505	-9,211
297	Demonstrators	1,272	1,800	57	21	78	234	380	146
250	Insurance Agents, Brokers & Underwriters	23,117	28,000	728	33	761	2,283	33	2,250
251	Real Estate Agents & Brokers	7,522	10,400	280	135	415	1,245	-	1,245
259	Stock & Bond Salesmen	1,756	2,500	280	248	528	1,584	-	1,584
	Other Sales Workers (N.E.C.)	271,592	343,700	10,649	4,193	14,842	44,526	25	44,501
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	618,288	759,000	21,213	15,204	36,417	109,251	30,102	79,149
	Construction Craftsmen	143,853	168,300	5,486	3,534	9,020	27,060	6,672	20,388
861	Brickmasons, Stone, Tile	14,279	16,500	506	247	753	2,259	380	1,879
860	Carpenters	39,642	42,000	1,616	642	2,258	6,774	2,105	4,669
820	Electricians	23,358	28,500	812	669	1,481	4,443	2,640	1,803
850	Excavating, Grading Oprs.	10,941	11,800	318	518	836	2,508	384	2,124
840	Painters & Paperhangers	20,893	22,500	1,001	450	1,451	4,353	403	3,950
842	Plasters	3,813	4,900	122	24	146	438	-	438
862	Plumbers & Pipefitters	22,887	29,600	799	888	1,687	5,061	496	4,565
866	Roofers & Slaters	3,548	5,700	142	28	170	510	-	170
999	Structural Metal Workers	4,492	6,800	170	68	238	714	264	450
	Foremen, (N.E.C.)	88,132	118,500	2,962	1,185	4,147	12,441	-	12,441
	Metalwkrg. Craftsmen	74,644	77,500	1,937	3,100	5,037	15,111	5,452	9,659
610	Blacksmiths, Forgemen, Hammermen	3,336	2,600	65	26	91	273	6	267
805	Boilermakers	2,382	2,300	52	5	57	171	7	164
504	Heat Treaters, Annealers	2,163	1,800	45	36	81	243	-	243
600	Machinists	41,857	42,000	1,049	2,268	3,317	9,951	4,495	5,456
638	Millwrights	6,074	7,500	187	150	337	1,011	122	889
804	Sheet Mtl. Wkrs.	7,808	9,800	245	98	343	1,029	657	372
601	Toolmakers, Diemakers	11,024	11,500	287	517	804	2,412	165	2,247
	Mechanics & Repairmen	151,743	230,400	5,760	5,299	11,059	33,177	13,713	19,464
827	Air Condt. Heating & Refrigmen.	3,724	5,400	135	108	243	729	1,439	710
621	Airplane	2,558	2,300	57	23	80	240	368	128
620	Motor Vehicles	43,438	56,000	1,400	1,680	3,080	9,240	8,164	1,076
633	Office Machine Repairmen	1,631	3,700	92	232	324	972	204	768
720	Radio & TV Repairmen	5,825	9,000	225	180	405	1,215	1,021	194
	Other Mechanics & Repairmen	94,567	154,000	3,851	3,084	6,935	20,805	2,517	18,288
	Printing Trades Craftsmen	21,005	22,000	550	110	660	1,980	912	1,068
650	Compositors & Typesetters	13,314	10,900	272	11	283	849	767	82
974-5	Electro & Stereotypers	652	1,000	25	1	26	78	86	12
971-2	Engravers & Lithographers	2,189	3,600	91	47	138	414	48	366
651	Pressmen & Plate Printers	4,850	6,500	162	51	213	639	11	628
	Other Craftsmen & Kindred Workers	138,911	142,300	4,518	1,976	6,494	19,482	3,353	16,129
526	Bakers	9,306	12,500	502	137	639	1,917	159	1,758
660	Cabinetmakers	3,626	3,900	97	58	155	465	968	-503
921	Cranesmen, Derrickmen, Hoistmen	19,721	26,000	650	442	1,092	3,276	-	3,276
168	Inspectors	11,239	16,400	410	164	574	1,722	88	1,634
700	Jewelers, Watchmkrs, Gold & Silversmiths	1,782	2,200	55	22	77	231	114	117
821	Linemen & Servicemen	16,391	21,300	534	319	853	2,559	146	2,413
628	Loom Fixers	1,205	1,100	27	5	32	96	-	96
711	Opticians, Lens Grinders & Polishers	1,364	2,100	52	12	64	192	11	181
777	Pattern & Model Mkrs., Except Paper	3,602	5,000	125	50	175	525	380	145
950	Stationary Engineers	19,444	20,500	512	102	614	1,842	29	1,813
780	Upholsters	2,916	4,400	110	66	176	528	208	320
	Craftsmen (N.E.C.)	48,315	26,900	1,444	597	2,043	6,129	1,250	4,879
	OPERATIVES & KINDRED WORKERS	935,328	1,073,000	51,655	-9,442	42,213	126,639	14,423	122,216
	Apprentices	5,741	7,000	140	280	420	1,260	-	1,260
739	Assemblers	33,968	40,500	1,215	810	2,025	6,075	-	6,075
720	Checkers, Examiners & Inspectors, Mfg.	37,695	52,500	1,575	1,837	3,412	10,236	-	10,236
906	Deliverymen, Routemen, Cab Drivers	36,120	50,800	1,422	1,016	2,438	7,314	-	7,314
502	Furnacemen, Smeltermen & Pourers	9,237	8,300	207	-83	124	372	-	372
504	Heaters, Metal	2,083	2,600	65	-26	39	117	-	117
361	Laundry & Dry Cleaning	20,732	24,200	968	605	1,573	4,719	30	4,689
939	Mine Operatives, Mine Laborers (N.E.C.)	35,068	20,000	700	-450	300	900	159	741
316	Meat Cutters, Exc. Slaughter & Packing House	11,688	15,900	397	477	874	5,622	318	5,304
952	Power Station Operators	2,100	2,800	70	-28	42	126	104	22
904	Truck & Tractor Drivers	101,221	128,000	3,200	5,120	8,320	24,960	333	24,627
819	Welders & Flame Cutters	34,761	46,000	1,150	1,380	2,530	7,590	2,935	4,655
580	Semiskilled Textile Occup.	93,679	95,900	4,795	-1,918	2,877	8,631	7,432	1,199

TABLE 1-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	5,011	3,342	133	-33	100	300	395	-95
689	Sewers & Stitchers, Mfg.	82,342	88,585	4,504	-1,847	2,657	7,971	7,023	948
682	Spinners, Textile	1,175	1,693	67	-16	51	153	-	153
683	Weavers, Textile	5,149	2,280	91	-22	69	207	14	193
	Other Operatives (N.E.C.)	511,235	578,500	35,751	-18,512	17,239	51,717	3,112	48,605
	SERVICE WORKERS, PRIVATE HOUSEHOLD	76,349	93,500	3,646	187	3,833	11,499	-	11,499
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	338,952	515,000	36,100	17,102	53,202	159,606	12,083	147,523
	Protective Service Workers	43,329	71,000	2,250	2,534	4,784	14,352	8	14,344
373	Firemen, Fire Protection	6,427	10,700	367	260	627	1,881	-	1,881
375	Policemen , Marshals	17,514	35,800	1,171	1,584	2,755	8,265	8	8,257
376	Guards, Watchmen	19,388	24,500	712	690	1,402	4,206	-	4,206
	Waiters, Cooks & Bartenders	126,813	190,700	21,009	6,654	27,663	82,989	1,884	81,105
312	Bartenders	18,086	26,200	786	707	1,493	4,479	163	4,316
314	Cooks	28,029	39,700	2,191	1,794	3,985	11,955	1,559	10,396
317	Counter & Fountain Workers	10,478	20,000	1,000	800	1,800	5,400	13	5,387
311	Kitchen Workers (N.E.C.)	19,492	28,500	5,928	427	6,355	19,065	41	19,024
311	Waiters & Waitresses	50,728	76,300	11,104	2,925	14,030	42,090	108	41,982
	Other Service Workers	168,810	190,800	10,766	5,589	16,355	49,065	9,405	39,660
355	Attendants, Hospital & Inst.	21,243	46,600	2,796	2,097	4,893	14,679	2,712	11,967
330	Barbers	11,126	16,800	420	168	588	1,764	86	1,678
381	Charwomen & Cleaners	16,573	24,400	1,220	244	1,464	4,392	13	4,379
332	Hairdressers & Cosmetologists	18,673	30,000	1,800	900	2,700	8,100	1,560	6,540
382	Janitors & Sextons	39,001	44,000	3,080	440	3,520	10,560	60	10,500
354	Practical Nurses	13,125	29,000	1,450	1,740	3,190	9,570	4,974	4,596
359	Other Service Workers (N.E.C.)	46,069	62,500	2,075	2,325	4,400	13,200	786	12,414
	LABORERS, EXCLUDING FARM & MINE	239,974	232,800	5,870	-6,574	-704	-2,112	-	-2,112
	OCCUPATIONS NOT REPORTED	190,007							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

CHAPTER FOUR

SUPPLY/DEMAND POSTURES FOR THE MAJOR LABOR MARKET AREA OF PENNSYLVANIA

In this chapter, the supply-demand postures for each of the 15 major labor market areas in the Commonwealth are presented. It has already been emphasized in Chapter Three that an accurate interpretation of this information is dependent on a thorough understanding of the scope and limitations of the data. Hence, the reader is encouraged to review Chapter Two prior to using the information in this chapter.

The supply-demand postures for each major labor market are based on the same format used in Table 1 which contains the statewide posture. The program planner should pay careful attention to the notes included in each table following the last entry. Included in these notes is a listing of the counties contained in each labor market area. Also included is a definition of the type of vocational education program graduate entered in Column Seven. It should be noted that a vocational education graduate in this table is one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate, and professional degrees.

The relationship of each occupational category to the corresponding vocational education program can be found in Table 28 in Chapter Five. Table 28 is based on the relationship of the Dictionary of Occupational Titles Classification and Code and the U. S. Office of Education Instructional Program Classification System. The reader is also encouraged to examine the tables in Chapter Five which provide more extensive information on the supply of graduates. For example, Table 19 shows the distribution of graduates for each major labor market area by type of training institution while Table 20 provides the distribution of graduates for each major labor market area for all three years in the supply-demand postures.

Using the grand totals found in each table in this chapter, conclusions such as those made for the statewide statistics (see the last paragraph on page 31) can be formulated for each major labor market area. For example, using Table 2, it can be stated with considerable confidence that in 1975 the Allentown-Bethlehem-Easton Labor Market Area will have about 210,000 persons gainfully employed; that approximately 7,600 persons will withdraw from the labor force each year; that 2,700 new job openings will occur each year; that approximately 10,300 job vacancies will exist annually and the average current annual supply of vocational education graduates is 3,300. The statistics used to draw these conclusions can be found in Columns Three through Seven of the grand totals in Table 2. Hence, using the same general information and inserting the labor market name and its corresponding statistics, similar statements could be drafted for each labor market.

TABLE 2

PENNSYLVANIA MANPOWER AND TRAINING DATA

Allentown-Bethlehem-Easton Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	173,379	210,000	7,647	2,661	10,308	30,924	9,990	20,934
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	16,962	26,860	776	1,072	1,848	5,544	2,065	3,479
	Engineers, Technical	2,174	3,770	93	150	243	729	144	585
002	Engineers, Aeronautical	3	5	0	0	0	0	0	0
008	Engineers, Chemical	162	260	6	10	16	48	26	22
005	Engineers, Civil	358	590	14	23	37	111	46	65
003	Engineers, Electrical	322	570	13	24	37	111	34	77
012	Engineers, Industrial	280	570	13	22	35	105	0	0
007	Engineers, Mechanical	505	830	20	32	52	156	15	141
011	Engineers, Metallurgical	230	410	10	17	28	84	15	69
010	Engineers, Mining	15	20	0	0	0	0	-	0
	Engineers, Sales	139	248	3	6	9	27	0	0
	Other Engineers Technical	160	328	8	13	21	63	8	55
	Natural Scientists	398	745	18	29	47	141	8	133
040	Agricultural Scientists	13	25	0	0	0	0	8	-8
041	Biological Scientists	7	20	0	0	0	0	-	0
022	Chemists	329	620	12	24	36	108	-	108
024	Geologists & Geophysicists	19	25	0	0	0	0	-	0
020	Mathematicians	0	5	0	0	0	0	-	0
023	Physicists	12	28	0	0	0	0	-	0
	Other Natural Scientists	18	22	0	0	0	0	0	0
	Technicians Excl. Medical & Dental	1,192	1,880	57	84	141	423	602	-179
017	Designers	164	280	7	10	17	54	0	54
726	Electrical & Electronic	141	260	5	12	17	54	562	-508
193	Radio Operators	46	70	1	1	1	3	0	3
018	Surveyors	55	95	2	3	5	15	0	15
	Technicians, Other	786	1,175	39	54	93	279	40	239
	Medical, Other Health Workers	3,391	6,610	204	263	467	1,401	164	1,237
	Chiropractors & Therapists	142	380	10	15	25	75	0	75
072	Dentists	189	310	7	12	19	57	-	57
077	Dietitians & Nutritionists	45	65	1	2	3	9	0	9
075	Nurses, Professional	1,686	3,100	86	114	200	600	0	600
079	Nurses, Student	238	550	22	22	44	132	0	132
079	Optometrists	25	80	2	2	4	12	-	12
071	Osteopaths	16	90	1	3	4	12	-	12
074	Pharmacists	174	200	4	7	11	33	-	33
070	Physicians & Surgeons	545	905	22	37	59	177	-	177
045	Psychologists	25	55	0	1	1	3	-	3
079	Technicians, Medical & Dental	302	850	38	38	76	228	164	64
073	Veterinarians	4	25	0	0	0	0	-	0
	Teachers	4,144	6,210	216	310	526	1,578	23	1,555
092	Teachers, Elementary	1,999	2,450	92	100	192	576	-	576
091	Teachers, Secondary	1,257	2,150	72	81	153	459	-	459
099	Teachers, Other Excl. College	308	610	18	24	42	126	23	103
090	Teachers, College	580	1,000	30	40	70	210	-	210
	Social Scientists	68	100	2	3	5	15	0	15
050	Economists	50	65	1	2	3	9	-	9
020	Statisticians & Actuaries	14	25	0	0	0	0	-	0
059	Other Social Scientists	4	10	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	5,618	7,545	195	301	496	1,488	1,124	364
160	Accountants & Auditors	938	1,280	31	51	82	246	-	246
001	Architects	31	55	0	2	2	6	0	6
017	Draftsmen	1,060	1,630	40	70	110	330	410	-80
110	Lawyers & Judges	336	440	10	17	27	81	-	81
166	Personnel & Labor Relation Wkrs.	181	360	9	14	23	69	-	69
195	Social & Welfare Workers (N.E.C.)	171	400	14	17	31	93	0	93
	Prof., Tech., Kindred Workers	2,901	3,380	86	130	216	648	714	-66
421	FARMERS AND FARM WORKERS	2,750	1,820	63	-32	31	93	65	28
185	MANAGERS, OFFICIALS & PROPRIETORS	10,999	13,490	363	-53	310	930	179	751
200	CLERICAL & KINDRED WORKERS	22,256	29,360	1,026	703	1,729	5,187	5,217	-30
217	Accounting Clerks & Bkprs.	1,789	2,100	64	52	116	348	1,239	-891
212	Bank Tellers	294	510	16	11	27	81	0	81
211	Cashiers	931	1,660	62	39	101	303		303
219	Office Machine Operators	525	1,160	48	34	82	246	490	-244
232	Postal Clerks	356	340	7	7	14	42	-	42
237	Receptionists	247	350	14	10	24	72	44	28
201	Secretaries	3,243	4,580	192	145	337	1,011	1,635	-624
222	Shipping & Receiving Clerks	1,055	1,000	25	23	48	144	0	144

TABLE 2-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	718	1,030	42	32	74	222	171	51
223	Stock Clerks & Storekeepers	748	1,380	54	40	94	282	5	277
235	Telephone Operators	813	380	37	16	53	159	0	159
203	Typists	1,017	1,420	63	32	95	285	580	-295
209	Other Clerical & Kindred Workers	10,520	13,000	376	233	609	1,827	1,053	774
250	SALES WORKERS	12,032	14,860	460	178	638	1,914	273	1,641
258	Advertising Agents & Salesman	56	80	1	0	1	3	262	-259
297	Demonstrators	76	100	2	0	2	6	11	-5
250	Insurance Agents, Brokers & Underwriters	771	990	24	11	35	105	0	105
251	Real Estate Agents & Brokers	271	360	8	3	11	33	-	33
259	Stock & Bond Salesmen	52	75	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	10,806	13,255	410	158	568	1,704	0	1,704
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	27,069	33,180	928	663	1,591	4,773	1,028	3,745
	Construction Craftsmen	5,879	6,760	222	141	363	1,089	319	770
861	Brickmasons, Stone, Tile	653	710	35	10	45	135	51	84
860	Carpenters	1,625	1,640	50	24	74	222	116	106
820	Electricians	1,080	1,270	35	29	64	192	89	103
850	Excavating, Grading Oprs.	345	530	14	23	37	111	1	110
840	Painters & Paperhangers	900	930	41	18	59	177	17	160
842	Plasters	93	120	2	0	2	6	-	6
862	Plumbers & Pipefitters	784	980	26	28	54	162	45	117
866	Roofers & Slaters	188	280	7	0	7	21	-	21
999	Structural Metal Workers	211	300	7	2	9	27	0	27
	Foremen, (N.E.C.)	3,861	5,200	130	52	182	546	0	546
	Metalwkrg. Craftsmen	2,818	3,030	75	121	196	588	220	368
610	Blacksmiths, Forgemen, Hammermen	193	170	4	8	12	36	0	36
805	Boilermakers	32	40	0	0	0	0	0	0
504	Heat Treaters, Annealers	140	150	3	0	3	9	-	9
600	Machinists	1,724	1,760	44	34	78	234	202	32
638	Millwrights	124	190	4	3	7	21	0	21
804	Sheet Mtl. Wkrs.	310	400	9	3	12	36	18	18
601	Toolmakers, Diemakers	293	320	8	14	22	66	0	0
	Mechanics & Repairmen	6,742	10,350	258	237	495	1,485	364	1,121
827	Air Condt. Heating & Refrigmen.	186	240	5	4	9	27	0	27
621	Airplane	25	35	0	0	0	0	0	0
620	Motor Vehicles	1,800	2,340	58	70	128	384	279	105
633	Office Machine Repairmen	65	140	3	7	10	30	0	30
720	Radio & TV Repairmen	180	250	5	4	9	27	39	-12
	Other Mechanics & Repairmen	4,486	7,345	175	102	277	831	46	785
	Printing Trades Craftsmen	1,013	1,010	24	4	28	84	44	40
650	Compositors & Typesetters	688	550	13	0	13	39	44	-5
974-5	Electro & Stereotypers	12	18	0	0	0	0	0	0
971-2	Engravers & Lithographers	118	200	4	4	8	24	0	24
651	Pressmen & Plate Printers	195	242	6	0	6	18	0	18
	Other Craftsmen & Kindred Workers	6,511	6,830	163	95	258	774	81	693
526	Bakers	329	420	9	4	13	39	12	27
660	Cabinetmakers	125	150	3	2	5	15	60	-45
921	Cranesmen, Derrickmen, Hoistmen	1,342	1,910	49	33	82	246	-	246
168	Inspectors	541	820	20	7	27	81	0	81
700	Jewelers, Watchmkrs, Gold & Silversmiths	72	90	2	0	2	6		6
821	Linemen & Servicemen	628	780	19	11	30	90		90
628	Loom Fixers	118	105	2	0	2	6	-	6
711	Opticians, Lens Grinders & Polishers	44	65	0	0	0	0		0
777	Pattern & Model Mkrs., Except Paper	217	280	6	2	8	24		24
950	Stationary Engineers	681	710	17	2	19	57		57
780	Upholsters	83	130	2	1	3	9		9
	Craftsmen (N.E.C.)	2,331	1,370	73	29	102	306	9	297
	OPERATIVES & KINDRED WORKERS	50,211	57,840	1,734	-520	1,214	3,642	728	2,914
	Apprentices	163	190	4	7	11	33	-	33
739	Assemblers	2,586	2,880	86	-215	-129	-387	-	-387
720	Checkers, Examiners & Inspectors, Mfg.	1,755	2,580	81	25	106	318	-	318
906	Deliverymen, Routemen, Cab Drivers	1,500	1,890	52	18	70	210	-	210
502	Furnacemen, Smeltermen & Pourers	546	510	12	-4	8	24	-	24
504	Heaters, Metal	187	240	6	0	6	18	-	18
361	Laundry & Dry Cleaning	913	960	48	11	59	177	0	117
939	Mine Operatives, Mine Laborers (N.E.C.)	421	470	11	0	11	33	0	33
316	Meat Cutters, Exc. Slaughter & Packing House	522	520	12	2	14	42	0	42
952	Power Station Operators	141	180	4	0	4	12	0	12
904	Truck & Tractor Drivers	4,482	5,750	143	115	258	774	173	601
819	Welders & Flame Cutters	1,219	1,580	39	31	70	210	63	147
580	Semiskilled Textile Occup.	10,574	12,050	602	-23	579	1,737	345	1,396

TABLE 2-Continued

OT ODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
85	Knitters, Loopers, Toppers	287	372	14	0	14	42	0	42
89	Sewers & Stitchers, Mfg.	9,581	11,150	446	-10	436	1,308	345	963
82	Spinners, Textile	78	68	2	0	2	6	-	6
83	Weavers, Textile	627	460	46	0	46	138	0	138
	Other Operatives (N.E.C.)	25,883	28,040	1,738	-84	1,654	4,962	147	4,815
	SERVICE WORKERS, PRIVATE HOUSEHOLD	2,181	2,590	661	285	946	2,838	-	2,838
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	13,186	19,750	1,381	651	2,032	6,096	435	5,661
	Protective Service Workers	1,472	2,180	89	71	150	450	0	450
73	Firemen, Fire Protection	182	270	8	5	13	39	-	39
75	Policemen , Marshals	523	950	31	41	72	216	0	216
76	Guards, Watchmen	767	960	27	26	53	159	-	159
	Waiters, Cooks & Bartenders	5,150	8,700	947	304	1,251	3,753	8	3,745
12	Bartenders	755	1,780	53	47	100	300	0	300
14	Cooks	1,068	1,630	89	72	161	483	8	475
17	Counter & Fountain Workers	1,990	890	44	35	79	237	0	237
11	Kitchen Workers (N.E.C.)	442	1,480	67	55	122	366	0	366
11	Waiters & Waitresses	1,895	2,920	61	43	104	312	0	312
	Other Service Workers	6,353	8,870	372	194	566	1,698	427	1,271
55	Attendants, Hospital & Inst.	669	1,740	104	78	182	546	64	482
30	Barbers	466	700	17	7	24	72	4	68
81	Charwomen & Cleaners	724	1,010	50	9	59	177	0	177
32	Hairdressers & Cosmetologists	706	1,260	75	37	112	336	9	327
82	Janitors & Sextons	1,789	2,030	141	19	160	480	0	480
54	Practical Nurses	382	1,020	50	61	111	333	350	-17
59	Other Service Workers (N.E.C.)	1,617	1,110	36	40	76	228	0	228
	LABORERS, EXCLUDING FARM & MINE	10,750	10,250	255	-286	-31	-93	-	-93
	OCCUPATIONS NOT REPORTED	4,983							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Allentown-Bethlehem-Easton Labor Market Area includes the following counties: Lehigh and Northampton.

Note: Warren County, New Jersey, statistical data are not included in this table.

Expected values were estimated for 1960 census where data were not available, (Lehigh and Northampton, counties).

TABLE 3

PENNSYLVANIA MANPOWER AND TRAINING DATA

Altoona Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	[illegible] (8)
	GRAND TOTAL	46,176	53,200	1,803	608	2,411	7,233	3,380	3,853
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	3,938	5,600	162	224	386	1,158	467	691
	Engineers, Technical	285	450	11	18	29	87	0	0
002	Engineers, Aeronautical	0	0	0	0	0	0	0	0
008	Engineers, Chemical	16	20	0	0	0	0	0	0
005	Engineers, Civil	76	110	2	4	6	18	0	18
003	Engineers, Electrical	77	130	3	5	8	24	0	24
012	Engineers, Industrial	34	60	1	2	3	9	0	9
007	Engineers, Mechanical	39	60	1	2	3	9	0	9
011	Engineers, Metallurgical	4	5	0	0	0	0	0	0
010	Engineers, Mining	8	10	0	0	0	0	-	0
	Engineers, Sales	8	10	0	0	0	0	0	0
	Other Engineers Technical	23	45	1	1	2	6	0	6
	Natural Scientists	61	110	2	4	6	18	22	-4
040	Agricultural Scientists	0	0	0	0	0	0	18	-18
041	Biological Scientists	0	0	0	0	0	0	-	0
022	Chemists	57	95	1	3	4	12	-	12
024	Geologists & Geophysicists	0	0	0	0	0	0	-	0
020	Mathematicians	4	5	0	0	0	0	-	0
023	Physicists	0	0	0	0	0	0	-	0
	Other Natural Scientists	0	10	0	0	0	0	0	0
	Technicians Excl. Medical & Dental	196	340	10	15	25	75	225	150
017	Designers	12	20	0	0	0	0	0	0
726	Electrical & Electronic	51	90	2	4	6	18	177	-159
193	Radio Operators	4	5	0	0	0	0	0	0
018	Surveyors	31	45	1	1	2	6	0	6
	Technicians, Other	98	180	4	5	9	27	48	-21
	Medical, Other Health Workers	983	1,740	53	69	122	366	14	352
	Chiropractors & Therapists	36	75	2	3	5	15	0	15
072	Dentists	59	70	1	2	3	9	-	9
077	Dietitians & Nutritionists	16	20	0	0	0	0	0	0
075	Nurses, Professional	555	950	26	35	61	183	0	0
079	Nurses, Student	98	200	8	8	16	48	0	0
079	Optometrists	13	20	0	0	0	0	-	0
071	Osteopaths	4	10	0	0	0	0	-	0
074	Pharmacists	29	35	0	1	1	3	-	3
070	Physicians & Surgeons	109	180	4	7	11	33	-	33
045	Psychologists	8	15	0	0	0	0	-	0
079	Technicians, Medical & Dental	56	160	8	8	16	48	34	36
073	Veterinarians	0	5	0	0	0	0	-	0
	Teachers	1,249	1,760	61	88	149	447	0	447
092	Teachers, Elementary	688	820	31	33	64	192	-	192
091	Teachers, Secondary	421	690	23	26	49	147	-	147
099	Teachers, Other Excl. College	104	170	3	8	11	33	0	33
090	Teachers, College	36	80	2	3	5	15	-	15
	Social Scientists	6	10	0	0	0	0	0	0
050	Economists	3	5	0	0	0	0	-	-
020	Statisticians & Actuaries	3	5	0	0	0	0	-	0
059	Other Social Scientists	0	0	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	1,158	1,190	30	47	77	231	208	23
160	Accountants & Auditors	128	160	4	6	10	30	-	30
001	Architects	16	20	0	0	0	0	0	0
017	Draftsmen	98	140	3	6	9	27	181	154
110	Lawyers & Judges	63	70	1	2	3	9	-	9
166	Personnel & Labor Relation Wkrs.	56	90	2	3	5	15	-	15
195	Social & Welfare Workers (N.E.C.)	82	150	5	6	11	33	22	11
	Prof., Tech., Kindred Workers	715	560	14	21	35	105	3	102
421	FARMERS AND FARM WORKERS	843	700	24	-12	12	36	181	-145
185	MANAGERS, OFFICIALS & PROPRIETORS	3,317	3,800	102	-15	87	261	24	237
200	CLERICAL & KINDRED WORKERS	5,279	6,800	238	143	481	1,383	1,716	-333
217	Accounting Clerks & Bkprs.	437	500	15	12	27	81	241	-160
212	Bank Tellers	91	150	5	3	8	24	0	24
211	Cashiers	321	560	21	13	34	102	0	102
219	Office Machine Operators	116	250	10	7	17	51	239	188
232	Postal Clerks	119	100	2	2	4	12	-	12
237	Receptionists	52	70	2	2	4	12	0	12
201	Secretaries	827	1,140	47	36	83	249	423	-174
222	Shipping & Receiving Clerks	273	250	6	6	12	36	0	36

TABLE 3-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	153	220	9	7	16	48	86	-38
223	Stock Clerks & Storekeepers	163	200	8	6	14	42	29	13
235	Telephone Operators	240	250	11	5	16	48	0	48
203	Typists	90	120	5	2	7	21	155	-134
209	Other Clerical & Kindred Workers	2,390	2,990	86	53	139	417	371	46
250	SALES WORKERS	3,911	4,500	139	54	193	579	169	410
258	Advertising Agents & Salesmen	12	15	0	0	0	0	169	-169
297	Demonstrators	20	25	0	0	0	0	0	0
250	Insurance Agents, Brokers & Underwriters	250	275	7	3	10	30	0	30
251	Real Estate Agents & Brokers	35	40	1	0	1	3	-	3
259	Stock & Bond Salesmen	4	5	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	3,390	4,140	128	49	177	531	0	531
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	8,776	10,500	294	210	504	1,512	635	877
	Construction Craftsmen	1,841	2,050	67	43	110	330	236	94
861	Bricklayers, Stone, Tile	138	140	7	2	9	27	46	-19
860	Carpenters	436	440	13	6	19	57	71	-14
820	Electricians	469	520	15	12	27	81	95	-14
850	Excavating, Grading Ops.	237	270	4	7	11	33	0	33
840	Painters & Paperhangers	237	280	10	4	14	42	0	42
842	Plasters	33	40	1	0	1	3	-	3
862	Plumbers & Pipefitters	341	400	10	12	22	66	24	42
866	Roofers & Sheters	15	20	0	0	0	0	-	0
899	Structural Metal Workers	43	90	2	0	2	6	0	6
	Foremen, (N.E.C.)	914	1,140	29	11	40	120	-	120
	Metalworking Craftsmen	1,594	1,480	37	59	96	288	110	178
610	Blacksmiths, Forgemen, Hammermen	198	145	3	7	10	30	0	30
805	Boilermakers	99	90	2	0	2	6	0	6
594	Heat Treaters, Annealers	0	5	0	0	0	0	-	0
600	Machinists	1,095	1,090	23	28	45	135	84	51
638	Millwrights	30	40	1	0	1	3	0	3
804	Sheet Mtl. Wkrs.	136	160	4	1	5	15	26	-11
601	Toolmakers, Diemakers	36	40	1	1	2	6	0	6
	Mechanics & Repairmen	2,483	2,930	73	67	140	420	203	217
827	Air Condit., Heating & Refrigeran.	33	40	1	0	1	3	2	1
621	Airplane	4	5	0	0	0	0	0	0
620	Motor Vehicles	474	580	14	17	31	93	135	-42
633	Office Machine Repairmen	8	13	0	0	0	0	0	0
720	Radio & TV Repairmen	67	90	2	1	3	9	14	-5
	Other Mechanic & Repairmen	1,897	2,200	52	50	82	244	52	194
	Printing Trades Craftsmen	137	130	3	0	3	9	8	1
650	Compositors & Typesetters	104	80	2	0	2	6	0	0
974.4	Electro & Stereotypers	0	0	-0	-0	-0	0	0	0
971.0	Engravers & Lithographers	15	30	0	0	0	0	0	0
651	Pressmen & Plate Printers	24	20	0	0	0	0	0	0
	Other Craftsmen & Kindred Workers	1,807	2,190	44	38	104	312	78	234
572	Bakers	139	160	4	1	5	15	0	15
810	Cabinetmakers	61	80	0	0	0	0	64	-64
921	Firemen, Barrisman, Motormen	262	270	6	4	10	30	-	30
168	Inspectors	373	360	9	3	12	36	0	36
700	Jewelers, Watchmkrs, Gold & Silversmiths	12	15	0	0	0	0	0	0
821	Linemen & Servicemen	196	230	5	3	8	24	0	24
608	Loom Fixers	23	30	0	0	0	0	0	0
771	Opticians, Lens Grinders & Polishers	13	15	0	0	0	0	0	0
777	Painters & Model Mkrs., Except Paper	12	15	0	0	0	0	0	0
800	Stationary Engineers	110	102	3	0	3	9	0	9
780	Upholsterers	39	50	1	0	1	3	0	3
783	Craftsmen (N.E.C.)	743	1,045	24	30	54	158	14	144
	OPERATIVES & KINDRED WORKERS	11,484	12,550	366	-199	167	501	158	343
	Apprentices	139	150	4	6	10	31	-	31
	Assemblers	217	180	4	-20	-16	-48	-	-48
706	Checkers, Examiners & Inspectors, Mfg.	533	570	13	6	19	57	-	57
690	Cutting Ops., Except Textile	288	280	7	0	7	21	-	21
692	Fabricators, Assemblers & Painters	80	85	2	0	2	6	-	6
706	Graders, Sorters	51	55	1	0	1	3	-	3
361	Laundry & Dry Cleaning	203	200	5	0	5	15	0	15
790	Mine Operatives, Mine Laborers (N.E.C.)	54	60	1	0	1	3	0	3
710	Meat Cutters, Exc. Slaughter & Packing House	153	160	4	0	4	12	0	12
691	Paper Goods Operatives	23	20	0	0	0	0	0	0
785	Truck & Tractor Drivers	1,486	1,600	38	16	54	162	0	162
810	Welders & Flame Cutters	888	1,100	27	4	31	93	0	93
760	Operatives (N.E.C.)	8[illegible]	7,000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 3-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	161	200	8	0	8	24	47	23
689	Sewers & Stitchers, Mfg.	652	900	36	0	36	108	40	68
682	Spinners, Textile	0	5	0	0	0	0	-	0
683	Weavers, Textile	28	50	5	0	5	15	0	15
	Other Operatives (N.E.C.)	6,240	6,205	384	-18	366	1,098	0	1,098
	SERVICE WORKERS, PRIVATE HOUSEHOLD	811	900	35	0	35	105	-	105
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	3,746	5,300	371	174	545	1,635	200	1,435
	Protective Service Workers	422	610	23	20	45	135	0	135
373	Firemen, Fire Protection	100	140	4	3	7	21	-	21
375	Policemen & Marshals	197	320	10	14	24	72	0	72
376	Guards, Watchmen	125	150	4	4	8	24	-	24
	Waiters, Cooks & Bartenders	1,360	1,920	209	67	276	828	18	810
312	Bartenders	188	240	7	6	13	39	0	39
314	Cooks	341	480	26	21	47	141	18	123
317	Counter & Fountain Workers	73	130	6	5	11	33	0	33
311	Kitchen Workers (N.E.C.)	177	240	11	9	20	60	0	60
311	Waiters & Waitresses	581	830	17	12	29	87	0	87
	Other Service Workers	1,944	2,770	116	60	176	328	143	385
355	Attendants, Hospital & Inst.	228	600	36	27	63	189	0	189
330	Barbers	127	180	4	1	5	15	2	13
381	Charwomen & Cleaners	216	280	14	2	16	48	0	48
332	Hairdressers & Cosmetologists	241	400	24	12	36	108	11	97
382	Janitors & Sextons	436	460	32	4	36	108	0	108
354	Practical Nurses	173	400	20	24	44	132	130	2
359	Other Service Workers (N.E.C.)	543	450	14	16	30	90	39	51
	LABORERS, EXCLUDING FARM & MINE	3,304	2,900	72	-81	-9	-27	-	-27
	OCCUPATIONS NOT REPORTED	1,281							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1975, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1963).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Altoona Labor Market Area includes Blair County.

TABLE 4

PENNSYLVANIA MANPOWER AND TRAINING DATA

Erie Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	86,892	113,000	3,857	1,518	5,375	16,125	6,290	9,835
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	9,579	16,300	472	632	1,124	3,372	493	2,879
	Engineers, Technical	1,187	2,200	55	88	143	429	61	368
002	Engineers, Aeronautical	17	30	0	1	1	3	0	3
008	Engineers, Chemical	12	20	0	0	0	0	0	0
005	Engineers, Civil	96	170	4	6	10	30	0	30
003	Engineers, Electrical	242	460	11	20	31	93	61	32
012	Engineers, Industrial	206	450	11	18	29	87	0	87
007	Engineers, Mechanical	279	490	12	19	31	93	0	93
011	Engineers, Metallurgical	49	90	2	3	5	15	0	15
010	Engineers, Mining	0	0	0	0	0	0	-	
	Engineers, Sales	163	240	6	9	15	45	0	45
	Other Engineers Technical	123	250	6	10	16	48	0	48
	Natural Scientists	113	250	6	10	16	48	36	12
040	Agricultural Scientists	4	10	0	0	0	0	26	-26
041	Biological Scientists	4	10	0	0	0	0	-	0
022	Chemists	93	190	3	7	10	30	-	30
024	Geologists & Geophysicists	0	0	0	0	0	0	-	30
020	Mathematicians	0	5	0	0	0	0	-	0
023	Physicists	12	30	0	1	1	3	-	3
	Other Natural Scientists	0	5	0	0	0	0	10	-10
	Technicians Excl. Medical & Dental	644	1,210	37	54	91	273	244	29
017	Designers	91	170	3	6	11	33	0	33
726	Electrical & Electronic	85	170	4	8	12	36	244	-208
193	Radio Operators	34	50	1	1	2	6	0	6
018	Surveyors	12	20	0	0	0	0	0	0
	Technicians, Other	422	800	27	36	63	189	0	189
	Medical, Other Health Workers	2,028	4,120	127	164	291	873	0	873
	Chiropractors & Therapists	76	200	5	8	13	39	0	39
072	Dentists	135	220	5	8	13	39	-	39
077	Dietitians & Nutritionists	33	50	2	2	4	12	0	12
075	Nurses, Professional	942	1,900	53	70	123	369	0	369
079	Nurses, Student	234	400	24	24	48	144	0	144
079	Optometrists	20	40	1	1	2	6	-	6
071	Osteopaths	33	80	2	3	5	15	-	15
074	Pharmacists	134	180	4	6	10	30	-	30
070	Physicians & Surgeons	279	490	12	20	32	96	-	96
045	Psychologists	7	20	0	0	0	0	-	0
079	Technicians, Medical & Dental	115	360	15	15	30	90	0	90
073	Veterinarians	32	20	0	0	0	0	-	0
	Teachers	2,491	6,130	144	206	350	1,050	0	1,050
092	Teachers, Elementary	1,325	3,800	68	73	141	23	-	23
091	Teachers, Secondary	897	1,700	57	64	121	363	-	363
099	Teachers, Other Excl. College	92	180	5	7	12	36	0	36
090	Teachers, College	177	450	13	18	31	93	-	93
	Social Scientists	43	80	2	3	5	15	0	15
050	Economists	30	45	1	1	2	6	-	6
020	Statisticians & Actuaries	13	25	0	1	1	3	-	3
059	Other Social Scientists	0	10	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	3,881	4,310	111	171	286	852	0	852
160	Accountants & Auditors	341	830	20	33	53	159	-	159
001	Architects	58	85	2	3	5	15	0	15
017	Draftsmen	623	1,000	23	33	56	167	181	-14
110	Lawyers & Judges	161	280	5	8	13	39	-	39
166	Personnel & Labor Relations Wkrs.	134	190	4	7	11	33	-	33
195	Social & Welfare Workers (N.E.C.)	198	240	6	8	14	42	-	42
	Prof., Tech., Kindred Workers	1,946	1,655	51	79	130	396	61	335
620	CRAFTS AND KINDRED WORKERS	8,454	8,700	348	-48	300	900	1,078	-178
100	MANAGERS, OFFICIALS & PROPRIETORS	6,854	6,950	348	-48	300	900	948	-48
400	CLERICAL & SALES WORKERS	11,310	12,500	610	405	1,015	3,045	4,260	-1,215
210	Accounting Clerks & Bkprs.	810	1,020	41	51	92	276	438	-162
241	Bank Tellers	156	240	12	12	24	72	0	72
201	Cashiers	1,000	1,200	48	60	108	324	0	324
249	Office Machine Operators	600	1,000	48	50	98	294	0	294
250	Postal Clerks	170	190	5	5	10	30	0	30
299	Receptionists	331	350	13	10	23	69	0	69
261	Secretaries	1,800	2,200	88	110	198	594	1,800	-1,206
290	Shipping & Receiving Clerks	470	560	23	18	41	123	0	123

TABLE 4-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	421	690	28	22	50	150	20	130
223	Stock Clerks & Storekeepers	640	1,320	52	39	91	273	6	267
235	Telephone Operators	415	490	22	10	32	96	0	96
203	Typists	401	640	28	14	42	126	572	-446
209	Other Clerical & Kindred Workers	5,255	6,940	201	124	325	975	1,388	-413
250	SALES WORKERS	6,874	9,400	291	112	403	1,209	135	1,074
258	Advertising Agents & Salesmen	16	30	0	0	0	0	92	-92
297	Demonstrators	35	50	1	0	1	3	43	-40
250	Insurance Agents, Brokers & Underwriters	356	710	18	8	26	78	0	78
251	Real Estate Agents & Brokers	177	250	6	3	9	27	-	27
259	Stock & Bond Salesmen	4	10	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	6,286	8,350	258	100	358	1,074	0	1,074
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	13,809	18,000	504	360	864	2,592	505	2,087
	Construction Craftsmen	2,598	3,320	109	69	178	534	32	502
861	Bricklayers, Stone, Tile	253	310	15	4	19	57	10	47
860	Carpenters	806	910	28	13	41	123	6	117
820	Electricians	487	640	18	15	33	99	7	92
850	Excavating, Grading Oprs.	154	260	7	11	18	54	0	54
840	Painters & Paperhangers	307	350	15	7	22	66	0	66
842	Plasters	75	100	2	0	2	6	-	6
862	Plumbers & Pipefitters	358	500	13	15	28	84	9	75
866	Roofers & Slaters	62	100	2	0	2	6	-	6
999	Structural Metal Workers	96	150	3	1	4	12	0	12
	Foremen, (N.E.C.)	2,322	3,420	85	34	119	357	-	357
	Metalwkrg. Craftsmen	2,354	2,550	63	102	165	495	197	298
610	Blacksmiths, Forgemen, Hammermen	81	70	1	0	1	3	0	3
805	Boilermakers	65	70	1	0	1	3	0	3
504	Heat Treaters, Annealers	85	80	2	0	2	6	-	6
600	Machinists	1,246	1,320	33	26	59	177	143	34
638	Millwrights	130	180	4	3	7	21	0	21
804	Sheet Mtl. Wkrs.	137	180	4	1	5	15	44	-29
601	Toolmakers, Diemakers	610	650	16	29	45	135	10	125
	Mechanics & Repairmen	3,230	5,270	131	121	252	756	181	575
827	Air Condt. Heating & Refrigmen.	124	170	4	3	7	21	0	21
621	Airplane	4	10	0	0	0	0	0	0
620	Motor Vehicles	812	1,170	29	35	64	192	119	73
633	Office Machine Repairmen	33	70	1	4	5	15	0	15
720	Radio & TV Repairmen	96	150	3	3	6	18	0	18
	Other Mechanics & Repairmen	2,161	3,700	88	51	139	417	62	355
	Printing Trades Craftsmen	405	470	11	2	13	39	19	20
650	Compositors & Typesetters	235	210	5	0	5	15	19	-4
974-5	Electro & Stereotypers	24	40	1	0	1	3	0	3
971-2	Engravers & Lithographers	27	50	1	1	2	6	0	6
651	Pressmen & Plate Printers	119	170	4	1	5	15	0	15
	Other Craftsmen & Kindred Workers	2,900	3,970	71	41	112	336	36	260
526	Bakers	173	240	6	2	8	24	0	24
660	Cabinetmakers	69	90	2	1	3	9	49	-40
901	Cranemen, Derrickmen, Hoistmen	419	650	16	11	27	75	-	75
168	Inspectors	329	370	9	3	12	36	0	36
700	Jewelers, Watchmkrs, Gold & Silversmiths	21	30	0	0	0	0	0	0
821	Linemen & Servicemen	330	490	11	6	17	51	0	51
638	Loom Fixers	0	0	0	0	0	0	-	0
711	Opticians, Lens Grinders & Polishers	22	30	0	0	0	0	0	0
777	Patters & Model Mkrs., Except Paper	233	310	9	2	9	33	27	-4
950	Stationary Engineers	406	440	11	2	13	39	0	39
780	Upholsters	32	50	1	0	1	3	0	3
	Craftsmen (N.E.C.)	2,056	480	45	0	89	87	0	87
	OPERATIVES & KINDRED WORKERS	18,561	23,750	712	-213	499	1,496	338	1,158
	Apprentices	180	250	6	10	16	48	-	48
710	Assemblers	2,041	2,420	58	-136	-238	-714	-	-714
370	Checkers, Examiners & Inspectors, Mfg.	968	1,020	22	16	67	(201)	0	(201)
906	Deliverymen, Routemen, Cab Drivers	855	1,100	31	11	42	126	0	126
810	Furnacemen, Smeltermen & Pourers	160	180	4	(1)	3	9	0	9
346	Knitters, Metal	31	30	0	0	0	0	0	0
361	Laundry & Dry Cleaning	401	520	15	4	19	57	0	57
930	Mine Operatives, Mine Laborers (N.E.C.)	33	30	0	0	0	0	0	0
715	Punch Cutters, Ex. Slaughter & Packing House	250	300	7	2	9	26	0	26
810	Power Station Operators	40	60	0	0	0	0	0	0
906	Truck & Tractor Drivers	1,600	2,200	58	17	75	225	0	225
810	Welders & Flame Cutters	400	500	15	0	15	45	(24)	21
690	Operatives (N.E.C.)	60	100	3	0	3	9	0	9

TABLE 4-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	0	0	0	0	0	0	0	0
689	Sewers & Stitchers, Mfg.	83	60	2	0	2	6	0	6
682	Spinners, Textile	0	0	0	0	0	0	-	0
683	Weavers, Textile	0	0	0	0	0	0	0	0
	Other Operatives (N.E.C.)	10,853	13,250	821	-39	782	2,346	159	2,187
	SERVICE WORKERS, PRIVATE HOUSEHOLD	1,212	1,600	62	1	63	189	-	189
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	6,888	11,300	791	372	1,163	3,489	283	3,206
	Protective Service Workers	718	1,170	47	38	85	245	0	245
373	Firemen, Fire Protection	205	330	11	7	18	54	-	54
375	Policemen , Marshals	246	480	15	21	36	108	0	108
376	Guards, Watchmen	267	360	10	10	20	60	-	60
	Waiters, Cooks & Bartenders	2,940	4,840	527	169	696	2,088	12	2,076
312	Bartenders	373	560	16	15	31	93	0	93
314	Cooks	756	1,230	67	55	122	366	12	354
317	Counter & Fountain Workers	191	400	20	16	36	108	0	108
311	Kitchen Workers (N.E.C.)	476	760	34	28	62	186	0	186
311	Waiters & Waitresses	1,144	1,890	39	28	67	201	0	201
	Other Service Workers	3,230	5,290	222	116	338	1,014	271	743
355	Attendants, Hospital & Inst.	358	950	57	42	99	297	39	258
330	Barbers	273	500	12	5	17	51	1	50
381	Charwomen & Cleaners	459	690	34	6	40	120	0	120
332	Hairdressers & Cosmetologists	362	700	42	21	63	189	98	91
382	Janitors & Sextons	819	1,000	70	10	80	240	0	240
354	Practical Nurses	213	480	24	28	52	156	133	23
359	Other Service Workers (N.E.C.)	746	970	32	35	67	201	0	201
	LABORERS, EXCLUDING FARM & MINE	4,048	4,300	107	-120	-13	-39	-	-39
	OCCUPATIONS NOT REPORTED	4,782							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Erie Labor Market Area includes Erie County.

TABLE 5

PENNSYLVANIA MANPOWER AND TRAINING DATA

Harrisburg Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	144,915	190,400	6,757	2,802	9,559	28,677	8,289	20,388
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	15,128	25,600	741	1,023	1,764	5,292	1,504	3,788
	Engineers, Technical	2,014	3,925	97	156	253	759	43	716
002	Engineers, Aeronautical	13	7	0	0	0	0	0	0
008	Engineers, Chemical	25	40	0	0	0	0	0	0
005	Engineers, Civil	712	1,285	30	50	80	240	16	224
003	Engineers, Electrical	401	785	19	33	52	156	8	148
012	Engineers, Industrial	321	725	17	28	45	135	5	130
007	Engineers, Mechanical	198	360	8	13	21	63	1	62
011	Engineers, Metallurgical	53	105	2	4	6	18	0	18
010	Engineers, Mining	8	10	0	0	0	0	-	0
	Engineers, Sales	71	110	2	4	6	18	0	18
	Other Engineers Technical	212	498	11	19	30	90	13	77
	Natural Scientists	236	525	12	19	31	93	43	50
040	Agricultural Scientists	4	10	0	0	0	0	37	-37
041	Biological Scientists	4	10	0	0	0	0	-	0
022	Chemists	157	370	6	13	19	57	-	57
024	Geologists & Geophysicists	36	55	0	2	2	6	-	6
020	Mathematicians	0	5	0	0	0	0	-	0
023	Physicists	5	10	0	0	0	0	-	0
	Other Natural Scientists	30	65	0	2	2	6	6	0
	Technicians Excl. Medical & Dental	1,080	2,230	67	99	166	498	444	54
017	Designers	120	220	6	8	14	42	0	42
726	Electrical & Electronic	209	415	9	19	28	84	443	-359
193	Radio Operators	66	90	2	2	4	12	1	11
018	Surveyors	130	230	4	8	12	36	0	36
	Technicians, Other	555	1,275	42	57	99	297	0	297
	Medical, Other Health Workers	2,957	5,335	164	212	376	1,128	158	1,070
	Chiropractors & Therapists	131	205	5	8	13	39	0	39
072	Dentists	166	250	5	9	14	42	-	42
077	Dietitians & Nutritionists	68	72	2	2	4	12	0	12
075	Nurses, Professional	1,381	2,570	70	94	164	492	0	492
078	Nurses, Student	293	580	23	23	46	138	0	138
079	Optometrists	42	76	1	2	3	9	-	9
071	Osteopaths	21	82	1	2	3	9	-	9
074	Pharmacists	141	185	3	5	8	24	-	24
070	Physicians & Surgeons	446	815	18	32	51	153	-	153
045	Psychologists	19	35	0	2	2	6	-	6
079	Technicians, Medical & Dental	237	480	14	14	32	96	158	-62
073	Veterinarians	32	65	0	2	2	6	-	6
	Teachers	3,396	6,310	219	314	533	1,599	0	1,599
091	Teachers, Elementary	1,730	2,725	102	111	213	639	-	639
091	Teachers, Secondary	1,173	2,480	82	93	175	525	-	525
099	Teachers, Other Excl. College	302	540	15	20	35	105	0	105
090	Teachers, College	191	565	18	21	37	111	-	111
	Social Scientists	145	363	6	9	15	45	30	15
050	Economists	36	60	0	0	0	0	-	0
050	Statisticians & Actuaries	109	219	4	7	11	33	-	33
059	Other Social Scientists	13	13	0	0	0	0	30	-30
	Other Prof., Tech., & Kindred Workers	3,999	7,010	180	278	459	1,377	786	591
160	Accountants & Auditors	1,280	1,830	44	71	115	345	0	345
001	Architects	49	109	2	3	5	15	0	15
017	Draftsmen	436	770	18	33	51	153	153	0
110	Lawyers & Judges	283	530	13	21	34	102	-	102
166	Personnel & Labor Relations Wkrs.	228	460	11	21	32	96	0	96
195	Social & Welfare Workers (N.E.C.)	239	513	17	21	38	114	0	114
	Prof., Tech., Kindred Workers	1,684	2,798	95	109	204	612	633	-21
620	[illegible]	4,997	6,998	199	-77	75	225	216	9
180	[illegible]	15,210	14,598	582	-42	504	978	129	849
200	[illegible]	18,405	17,340	2,242	1,698	3,680	9,768	4,680	5,088
210	Accounting Clerks & Bkprs.	1,424	1,617	64	52	116	348	274	74
210	Bank Tellers	290	388	19	13	32	96	0	96
211	Cashiers	1,007	1,228	61	50	111	333	0	333
232	Office Machine Operators	1,410	1,650	107	61	168	504	168	336
160	Payroll Clerks	201	303	10	11	21	63	0	63
209	Shipping & Receiving Clerks	547	600	0	0	50	65	0	65
201	Secretaries	6,424	8,000	480	480	960	2,880	2,400	480
241	Shipping & Receiving Clerks	1,000	1,200	60	60	120	360	0	360

TABLE 5-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	1,151	1,930	79	61	140	420	91	329
223	Stock Clerks & Storekeepers	1,061	2,245	88	67	155	465	25	440
235	Telephone Operators	915	1,090	47	21	68	204	0	204
203	Typists	2,788	4,505	202	103	305	915	522	393
209	Other Clerical & Kindred Workers	13,585	18,120	523	324	847	2,541	943	1,598
250	SALES WORKERS	10,359	15,900	491	190	681	2,043	168	1,875
258	Advertising Agents & Salesmen	37	60	0	0	0	0	159	-159
297	Demonstrators	63	90	2	0	2	6	9	-3
250	Insurance Agents, Brokers & Underwriters	986	1,285	33	14	47	141	0	141
251	Real Estate Agents & Brokers	320	460	11	5	16	48	-	48
259	Stock & Bond Salesmen	65	90	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	8,888	13,915	430	166	596	1,788	0	1,788
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	21,862	27,800	775	552	1,327	3,981	1,181	2,800
	Construction Craftsmen	5,154	6,640	218	137	355	1,065	436	629
861	Bricklayers, Stone, Tile	430	630	30	8	38	114	52	62
860	Carpenters	1,589	1,800	55	26	81	243	131	112
820	Electricians	779	1,025	29	23	52	156	102	54
850	Excavating, Grading Oprs.	310	515	22	21	43	129	29	100
840	Painters & Paperhangers	916	1,100	48	20	68	204	19	185
842	Plasters	116	160	3	0	3	9	-	9
862	Plumbers & Pipefitters	795	1,070	28	30	58	174	65	109
866	Roofers & Slaters	148	230	5	0	5	15	-	15
899	Structural Metal Workers	71	110	2	0	2	6	38	-32
	Foremen, (N.E.C.)	2,779	4,095	101	40	141	423	-	423
	Metalwkrg. Craftsmen	1,733	1,915	45	71	116	348	182	166
610	Blacksmiths, Forgemen, Hammermen	74	55	0	2	2	6	0	6
805	Boilermakers	62	65	1	0	1	3	0	3
504	Heat Treaters, Annealers	43	40	0	0	0	0	-	0
600	Machinists	980	1,045	24	20	44	132	134	-2
638	Millwrights	78	105	1	1	2	6	0	6
804	Sheet Mtl. Wkrs.	249	340	7	3	10	30	48	-18
601	Toolmakers, Diemakers	247	265	3	6	9	27	0	27
	Mechanics & Repairmen	6,602	10,035	250	229	479	1,437	487	950
827	Air Condt. Heating & Refrigmen.	116	160	3	2	5	15	43	28
621	Airplane	653	200	4	1	5	15	1	14
620	Motor Vehicles	1,579	2,225	54	65	119	357	255	102
633	Office Machine Repairmen	115	230	5	12	17	51	3	48
720	Radio & TV Repairmen	307	450	9	8	17	51	90	-39
	Other Mechanics & Repairmen	3,832	6,770	181	94	255	765	95	670
	Printing Trades Craftsmen	710	800	18	3	21	63	51	12
650	Compositors & Typesetters	444	485	9	0	9	27	51	-24
974-5	Electro & Stereotypers	18	25	0	0	0	0	0	0
971-2	Engravers & Lithographers	62	130	2	1	3	9	0	9
651	Pressmen & Plate Printers	184	230	5	1	6	18	0	18
	Other Craftsmen & Kindred Workers	4,884	4,315	102	39	141	423	25	398
526	Bakers	244	250	8	3	11	33	0	33
660	Cabinetmakers	71	90	1	0	1	3	24	-21
901	Cranemen, Derrickmen, Hoistmen	372	390	17	10	27	81	-	81
168	Inspectors	555	680	21	8	29	87	0	87
700	Jewelers, Watchmkrs, Gold & Silversmiths	32	43	0	0	0	0	0	0
821	Linemen & Servicemen	730	955	23	13	36	108	0	108
628	Loom Fixers	24	23	0	0	0	0	1	-1
711	Opticians, Lens Grinders & Polishers	42	58	0	0	0	0	-	0
777	Pattern & Model Mkrs., Except Paper	226	290	3	0	3	9	0	9
950	Stationary Engineers	536	650	15	2	17	51	0	51
780	Upholsters	383	333	3	1	4	12	0	12
	Craftsmen (N.E.C.)	1,859	299	14	6	20	60	0	60
	OPERATIVES & KINDRED WORKERS	23,344	29,900	1,033	-268	835	2,505	63	2,442
	Apprentices	282	298	6	7	13	39	-	39
759	Assemblers	261	443	13	-50	-24	-87	0	-87
721	Checkers, Examiners & Inspectors, Mfg.	724	1,200	35	9	38	113	0	113
913	Deliverymen, Routemen, Cab Drivers	1,283	1,250	35	12	47	141	-	141
681	Furnacemen, Smeltermen & Pourers	202	195	7	-2	5	15	-	15
684	Heaters, Metal	71	100	3	0	3	9	-	9
361	Laundry & Dry Cleaning	554	660	41	9	50	150	0	150
783	Mine Operatives, Mine Laborers (N.E.C.)	234	225	2	0	2	6	0	6
584	Meat Cutters, Exc. Slaughter & Packing House	591	580	8	0	8	24	0	24
652	Power Station Operators	48	80	0	1	1	3	0	3
696	Truck & Tractor Drivers	3,339	4,050	103	30	133	399	25	374
810	Welders & Flame Cutters	348	380	10	2	12	36	0	36
698	Construction Trades Helpers	2,437	2,550	68	13	81	243	0	243

TABLE 5-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	38	40	1	0	1	3	0	3
689	Sewers & Stitchers, Mfg.	2,736	3,180	126	-2	124	372	0	372
682	Spinners, Textile	3	2	0	0	0	0	-	0
683	Weavers, Textile	160	115	11	0	11	33	0	33
	Other Operatives (N.E.C.)	14,774	15,998	989	-47	942	2,826	30	2,796
	SERVICE WORKERS, PRIVATE HOUSEHOLD	2,033	2,600	100	1	101	303	-	303
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	11,821	18,400	1,287	606	1,893	5,679	371	5,308
	Protective Service Workers	1,455	2,340	94	76	170	510	8	502
373	Firemen, Fire Protection	177	280	8	6	14	42	-	42
375	Policemen , Marshals	640	1,190	38	50	88	264	8	256
376	Guards, Watchmen	638	870	24	23	47	141	-	141
	Waiters, Cooks & Bartenders	4,649	7,485	815	260	1,073	3,225	86	3,139
312	Bartenders	495	730	21	18	39	117	0	117
314	Cooks	1,092	1,720	93	75	168	504	86	418
317	Counter & Fountain Workers	360	725	36	28	64	192	0	192
311	Kitchen Workers (N.E.C.)	723	1,130	50	41	91	273	0	273
311	Waiters & Waitresses	1,979	3,180	45	46	111	333	0	333
	Other Service Workers	5,717	8,575	359	186	545	1,635	261	1,374
355	Attendants, Hospital & Inst.	629	1,565	93	69	162	486	58	428
330	Barbers	346	560	13	4	17	51	7	44
381	Charwomen & Cleaners	474	710	35	6	41	123	0	123
332	Hairdressers & Cosmetologists	625	1,190	71	35	106	318	33	285
382	Janitors & Sextons	1,459	1,805	125	17	142	426	0	426
354	Practical Nurses	371	900	44	54	98	294	163	131
359	Other Service Workers (N.E.C.)	1,813	1,845	59	67	126	378	16	362
	LABORERS, EXCLUDING FARM & MINE	7,879	7,900	197	-220	-23	-69	-	-69
	OCCUPATIONS NOT REPORTED	6,269							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-four Programs in Four-four Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Harrisburg Labor Market Area includes the following counties: Cumberland, Dauphin and Perry.

TABLE 6

PENNSYLVANIA MANPOWER AND TRAINING DATA

Johnstown Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	84,799	92,400	3,153	957	4,110	12,330	7,202	5,128
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	7,730	10,600	306	424	730	2,190	615	1,575
	Engineers, Technical	641	955	23	37	60	180	47	133
002	Engineers, Aeronautical	8	10	0	0	0	0	0	0
008	Engineers, Chemical	0	5	0	0	0	0	0	0
005	Engineers, Civil	85	120	2	4	6	18	0	18
003	Engineers, Electrical	89	135	2	5	7	21	0	21
012	Engineers, Industrial	166	290	7	11	18	54	0	54
007	Engineers, Mechanical	101	140	3	5	8	24	0	24
011	Engineers, Metallurgical	57	85	1	3	4	12	0	12
010	Engineers, Mining	57	50	1	1	2	6	-	6
	Engineers, Sales	28	30	0	0	0	0	0	0
	Other Engineers Technical	50	90	1	3	4	12	47	-35
	Natural Scientists	35	85	1	2	3	9	28	-19
040	Agricultural Scientists	4	5	0	0	0	0	16	-16
041	Biological Scientists	4	5	0	0	0	0	-	0
022	Chemists	47	75	1	2	3	9	-	9
024	Geologists & Geophysicists	0	0	0	0	0	0	-	0
020	Mathematicians	0	0	0	0	0	0	-	0
023	Physicists	0	0	0	0	0	0	-	0
	Other Natural Scientists	0	0	0	0	0	0	12	-12
	Technicians Excl. Medical & Dental	248	410	12	18	30	90	24	66
017	Designers	12	15	0	0	0	0	0	0
726	Electrical & Electronic	19	30	0	1	1	3	24	-21
193	Radio Operators	8	10	0	0	0	0	0	0
018	Surveyors	60	85	1	3	4	12	0	12
	Technicians, Other	149	270	8	11	19	57	0	57
	Medical, Other Health Workers	1,867	2,817	87	112	199	597	173	422
	Chiropractors & Therapists	44	50	0	1	1	3	0	3
072	Dentists	128	153	3	5	8	24	-	24
077	Dietitians & Nutritionists	27	30	0	1	1	3	0	3
075	Nurses, Professional	1,038	1,320	41	55	96	288	31	257
079	Nurses, Student	117	180	7	7	14	42	0	42
079	Optometrists	19	35	0	1	1	3	-	3
071	Osteopaths	12	15	0	0	0	0	-	0
074	Pharmacists	86	80	1	3	4	12	-	12
070	Physicians & Surgeons	283	280	6	11	17	51	-	51
045	Psychologists	0	7	0	0	0	0	-	0
079	Technicians, Medical & Dental	191	445	19	19	38	114	144	-30
073	Veterinarians	0	20	0	0	0	0	-	0
	Teachers	2,737	3,230	112	141	273	819	34	785
092	Teachers, Elementary	1,440	1,500	57	61	118	354	-	354
091	Teachers, Secondary	1,004	1,400	43	53	99	297	-	297
099	Teachers, Other Excl. College	148	170	5	6	11	33	74	-41
090	Teachers, College	125	160	4	8	12	36	-	36
	Social Scientists	29	48	0	1	1	3	24	-21
050	Economists	20	28	0	0	0	0	-	0
059	Statisticians & Actuaries	9	15	0	0	0	0	-	0
059	Other Social Scientists	0	5	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	2,253	2,865	79	102	181	543	345	198
160	Accountants & Auditors	257	305	7	10	17	51	-	51
001	Architects	18	23	0	0	0	0	6	-6
017	Draftsmen	249	320	8	14	22	66	97	-31
110	Lawyers & Judges	104	140	4	5	9	27	-	27
166	Personnel & Labor Relations Wkrs.	43	60	1	1	2	6	-	6
195	Social & Welfare Workers (N.E.C.)	158	217	6	8	14	42	0	42
	Prof., Tech., Kindred Workers	1,394	1,800	53	64	117	351	246	105
601	[illegible]	1,780	1,900	57	63	120	360	297	63
700	[illegible]	1,847	1,800	54	60	114	342	57	285
000	[illegible]	8,727	10,400	261	347	608	1,824	1,824	1,824
210	Accounting Clerks & Bkprs.	644	680	18	23	41	123	459	-336
242	Bank Tellers	210	225	6	8	14	42	0	42
201	Cashiers	803	888	22	30	52	156	0	156
210	Office Machine Operators	158	220	6	8	14	42	0	42
100	Payroll Clerks	120	150	4	5	9	27	0	27
101	Receptionists	198	240	6	8	14	42	0	42
201	Secretaries	2,680	3,210	80	111	191	573	1,368	-795
243	Shipping & Receiving Clerks	220	250	6	8	14	42	0	42

TABLE 6-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	258	340	13	10	23	69	359	290
223	Stock Clerks & Storekeepers	230	385	14	10	24	72	8	64
235	Telephone Operators	276	260	10	5	15	45	0	45
203	Typists	248	320	13	6	19	57	700	643
209	Other Clerical & Kindred Workers	3,936	4,755	137	85	222	666	1,203	537
250	SALES WORKERS	6,552	7,250	223	86	309	927	138	789
258	Advertising Agents & Salesmen	27	35	0	0	0	0	138	-138
297	Demonstrators	23	25	0	0	0	0	0	0
250	Insurance Agents, Brokers & Underwriters	449	475	11	5	16	48	0	48
251	Real Estate Agents & Brokers	57	75	1	0	1	3	-	3
259	Stock & Bond Salesmen	35	40	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	5,961	6,600	203	78	281	843	0	843
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	13,793	15,300	427	305	732	2,196	795	1,401
	Construction Craftsmen	3,159	3,300	108	68	176	528	81	447
861	Bricklayers, Stone, Tile	394	380	16	5	21	63	0	63
860	Carpenters	890	865	26	12	38	114	0	114
820	Electricians	529	550	15	12	27	81	77	4
850	Excavating, Grading Oprs.	400	500	12	21	33	99	3	96
840	Painters & Paperhangers	345	320	14	6	20	60	0	60
842	Plasters	75	80	1	0	1	3	-	3
862	Plumbers & Pipefitters	380	425	11	12	23	69	0	69
866	Roofers & Slaters	40	50	0	0	0	0	-	0
899	Structural Metal Workers	106	130	3	0	3	9	1	8
	Foremen, (N.E.C.)	1,845	2,200	54	21	75	225	-	225
	Metalwkrs. Craftsmen	1,098	970	23	38	61	183	123	60
610	Blacksmiths, Forgemen, Hammermen	55	86	3	6	9	27	0	27
805	Boilermakers	51	40	0	0	0	0	0	0
504	Heat Treaters, Annealers	22	15	0	0	0	0	-	0
603	Machinists	675	580	12	9	21	63	102	-39
638	Millwrights	181	200	4	3	7	21	0	21
804	Sheet Mtl. Wkrs.	47	50	1	0	1	3	21	-18
601	Toolmakers, Diemakers	36	30	0	1	1	3	0	3
	Mechanics & Repairmen	3,617	4,225	105	96	201	603	382	221
827	Air Condt. Heating & Refrigeran.	56	65	1	1	2	6	6	0
621	Airplane	4	5	0	0	0	0	0	0
620	Motor Vehicles	1,103	1,280	31	38	69	207	333	-126
633	Office Machine Repairmen	47	80	1	4	5	15	42	-27
720	Radio & TV Repairmen	198	233	1	1	2	6	37	-31
	Other Mechanics & Repairmen	2,209	2,560	60	33	93	280	64	221
	Printing Trades Craftsmen	192	170	4	0	4	12	19	-7
650	Compositors & Typesetters	140	100	1	0	1	3	10	-7
974-5	Electro & Stereotypers	0	0	0	0	0	0	0	0
971-2	Engravers & Lithographers	24	40	0	0	0	0	0	0
651	Pressmen & Plate Printers	28	30	0	0	0	0	0	-9
	Other Craftsmen & Kindred Workers	3,682	4,435	106	41	147	501	199	311
526	Bakers	141	155	3	1	4	12	0	12
660	Cabinetmakers	82	99	1	0	1	3	41	-38
921	Cranemen, Derrickmen, Hoistmen	963	1,000	29	29	48	144	0	144
168	Inspectors	532	670	15	5	20	60	0	60
700	Jewelers, Watchmkrs, Gold & Silversmiths	13	15	0	0	0	0	19	-19
821	Linemen & Servicemen	362	395	10	7	17	51	0	51
619	Loom Fixers	0	0	0	0	0	0	0	0
711	Opticians, Lens Grinders & Polishers	36	35	0	0	0	0	35	-35
777	Pattern & Model Mkrs., Except Paper	59	63	0	0	0	0	0	0
910	Stationary Engineers	261	260	5	0	5	15	0	15
380	Upholsterers	34	30	0	0	0	0	24	-24
	Craftsmen (N.E.C.)	1,870	2,090	86	36	158	394	31	363
	OPERATIVES & KINDRED WORKERS	20,974	22,500	574	-201	473	1,419	241	1,178
	Apprentices	139	125	2	6	8	18	0	18
752	Assemblers	237	240	6	-17	-11	-33	0	-33
721	Checkers, Examiners & Inspectors, Mfg.	568	650	13	6	17	51	0	51
950	Deliverymen, Routemen, Cab Drivers	597	660	18	6	24	72	0	72
502	Furnacemen, Smeltermen & Pourers	108	105	4	-2	2	6	0	6
106	Hookers, Metal	132	145	3	0	3	9	0	9
361	Laundry & Dry Cleaning	367	380	14	1	15	45	0	45
599	Mine Operatives, Mine Laborers (N.E.C.)	4,283	3,800	71	-19	52	156	156	156
316	Meat Cutters, Exc. Slaughter & Packing House	357	390	7	3	10	30	0	30
950	Power Station Operators	58	60	0	0	0	0	0	0
906	Truck & Tractor Drivers	2,020	2,600	66	25	91	273	0	273
810	Welders & Flame Cutters	1,080	1,270	31	11	42	126	60	66
680	Semiskilled Textile Mnfg.	2,003	2,000	50	-4	46	138	0	138

TABLE 6-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	0	0	0	0	0	0	0	0
689	Sewers & Stitchers, Mfg.	2,595	2,600	64	-1	63	189	0	189
682	Spinners, Textile	8	4	0	0	0	0	-	0
683	Weavers, Textile	8	6	99	0	99	297	0	297
	Other Operatives (N.E.C.)	8,873	10,240	634	-29	605	1,815	86	1,729
	SERVICE WORKERS, PRIVATE HOUSEHOLD	1,219	1,200	46	0	46	138	-	138
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	7,394	9,900	692	325	1,017	3,051	471	2,580
	Protective Service Workers	616	800	32	25	57	171	0	171
373	Firemen, Fire Protection	83	110	3	1	4	12	-	12
375	Policemen , Marshals	253	390	12	17	29	87	0	87
376	Guards, Watchmen	280	300	8	7	15	45	-	45
	Waiters, Cooks & Bartenders	2,868	3,785	412	131	542	1,626	48	1,578
312	Bartenders	532	640	18	17	35	105	0	105
314	Cooks	744	980	53	43	96	288	48	240
317	Counter & Fountain Workers	140	235	11	9	20	60	0	60
311	Kitchen Workers (N.E.C.)	317	410	18	14	32	96	0	96
311	Waiters & Waitresses	1,135	1,520	31	22	53	159	0	159
	Other Service Workers	3,910	5,315	223	116	339	1,017	423	594
355	Attendants, Hospital & Inst.	559	1,135	68	50	118	354	86	268
333	Barbers	233	315	7	2	9	27	2	25
381	Charwomen & Cleaners	434	570	28	5	33	99	0	99
332	Hairdressers & Cosmetologists	368	540	31	15	46	138	5	133
382	Janitors & Sextons	1,115	1,100	74	10	84	252	0	252
354	Practical Nurses	384	660	32	39	71	213	100	117
359	Other Service Workers (N.E.C.)	797	995	33	35	67	201	0	201
	LABORERS, EXCLUDING FARM & MINE	7,398	6,300	197	-179	-18	-54	-	-54
	OCCUPATIONS NOT REPORTED	2,384							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1975, 1985 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Rehabilitation Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Johnstown Labor Market Area includes the following counties: Cambria and Somerset.

TABLE 7

PENNSYLVANIA MANPOWER AND TRAINING DATA

Lancaster Labor Market Area
July 1, 1964 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	5 YEAR DEMAND (6)	5 YEAR SUPPLY (7)	ADJUST DEMAND (8)
	GRAND TOTAL	113,240	144,000	4,965	1,400	6,451	19,353	5,303	14,588
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	10,214	17,400	504	846	1,350	3,600	93	3,507
	Engineers, Technical	1,124	2,130	53	85	138	414	0	414
002	Engineers, Aeronautical	0	0	0	0	0	0	0	0
038	Engineers, Chemical	66	110	2	4	6	18	0	18
005	Engineers, Civil	109	190	4	7	11	33	0	33
003	Engineers, Electrical	204	330	12	22	34	102	0	102
012	Engineers, Industrial	235	320	13	20	32	96	3	96
007	Engineers, Mechanical	220	360	9	15	24	72	0	72
011	Engineers, Metallurgical	34	60	1	2	3	9	0	9
010	Engineers, Mining	3	3	0	0	0	0	-	0
	Engineers, Sales	35	50	1	2	3	9	3	6
	Other Engineers Technical	158	337	8	13	21	63	0	63
	Natural Scientists	247	510	12	20	32	96	21	75
040	Agricultural Scientists	33	50	1	2	3	9	10	-1
041	Biological Scientists	0	20	0	0	0	0	-	0
022	Chemists	177	330	7	14	21	63	-	63
024	Geologists & Geophysicists	0	0	0	0	0	0	-	0
020	Mathematicians	6	10	0	0	0	0	-	0
023	Physicists	29	70	1	2	3	9	-	9
	Other Natural Scientists	7	10	0	0	0	0	3	-3
	Technicians Excl. Medical & Dental	931	1,950	60	87	147	441	28	413
017	Designers	88	160	4	6	10	30	2	28
245	Electrical & Electronic	205	380	9	16	25	75	0	75
193	Radio Operators	4	10	0	1	1	3	0	3
018	Surveyors	28	50	1	2	3	9	0	9
	Technicians, Other	606	1,340	45	62	106	318	0	318
	Medical, Other Health Workers	1,117	1,890	105	133	238	714	0	714
	Chiropractors & Therapists	60	100	4	6	10	30	0	30
072	Dentists	127	190	6	9	15	45	0	45
077	Dietitians & Nutritionists	34	50	1	2	3	9	0	9
075	Nurses, Professional	1,070	1,900	53	76	129	387	0	387
079	Nurses, Student	176	400	16	16	32	96	0	96
078	Optometrists	23	30	1	1	2	6	0	6
071	Osteopaths	0	0	0	0	0	0	0	0
074	Pharmacists	65	100	3	4	7	21	0	21
070	Physicians & Surgeons	307	520	13	21	34	102	0	102
045	Psychologists	0	0	0	0	0	0	0	0
079	Technicians, Medical & Dental	152	600	15	15	30	90	0	90
073	Veterinarians	31	50	1	1	2	6	0	6
	Teachers	2,643	4,700	164	224	388	1,164	0	1,164
	Teachers, Elementary	1,880	2,100	70	80	150	450	0	450
091	Teachers, Secondary	484	1,800	61	85	146	438	0	438
090	Teachers, Other Excl. College	176	300	10	13	23	69	0	69
090	Teachers, College	103	500	23	46	69	207	0	207
	Social Scientists	94	180	7	9	16	48	0	48
050	Economists	43	80	3	4	7	21	0	21
050	Statisticians & Actuaries	14	20	0	0	0	0	0	0
059	Other Social Scientists	0	0	0	0	0	0	0	0
	Other Prof., Tech., & Kindred Workers	5,535	9,120	457	685	1,142	3,426	0	3,426
169	Accountants & Auditors	511	750	18	30	48	144	0	144
001	Architects	70	90	4	6	10	30	0	30
017	Draftsmen	680	1,020	41	61	102	306	0	306
111	Lawyers & Judges	194	330	7	14	21	63	0	63
165	Personnel & Labor Relations Wkrs.	107	150	4	6	10	30	0	30
195	Social & Welfare Workers (E.X.C.)	201	330	11	16	27	81	0	81
	Prof., Tech., Kindred Workers	3,010	5,450	372	553	925	2,772	0	2,772
001	[illegible]	4,230	4,400	160	-165	331	975	297	678
185	[illegible]	1,240	1,400	220	-16	204	612	36	576
200	[illegible]	10,260	10,800	400	400	1,200	3,600	2,000	1,600
210	Accounting Clerks & Bkpr.	1,130	1,700	40	57	97	291	91	200
212	Bank Tellers	230	340	10	15	25	75	5	70
211	Cashiers	334	1,200	36	48	84	252	126	126
219	Office Machine Operators	134	190	6	8	14	42	0	42
216	Postal Clerks	147	200	6	8	14	42	0	42
217	Receptionists	220	350	14	16	30	90	0	90
201	Secretaries	1,167	2,100	84	104	188	564	0	564
214	Shipping & Receiving Clerks	691	710	18	17	35	105	0	105

TABLE 7-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	334	540	22	17	39	117	29	88
223	Stock Clerks & Storekeepers	491	1,000	40	30	70	210	23	187
235	Telephone Operators	420	480	21	10	31	93	0	93
203	Typists	639	1,000	45	23	68	204	406	-202
209	Other Clerical & Kindred Workers	5,377	7,720	223	138	361	1,083	846	237
250	SALES WORKERS	8,041	10,700	331	128	459	1,377	38	1,339
258	Advertising Agents & Salesmen	71	100	2	1	3	9	38	-29
297	Demonstrators	35	50	1	0	1	3	0	3
250	Insurance Agents, Brokers & Underwriters	460	600	15	7	22	66	0	66
251	Real Estate Agents & Brokers	176	250	6	3	9	27	-	27
259	Stock & Bond Salesmen	24	30	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	9,275	9,670	299	116	415	1,245	0	1,245
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	16,848	22,500	630	450	1,080	3,240	939	2,301
	Construction Craftsmen	4,871	5,960	196	125	321	963	124	839
861	Brickmasons, Stone, Tile	593	700	35	11	46	138	22	116
860	Carpenters	1,746	1,940	60	29	89	267	42	225
820	Electricians	599	780	22	18	40	120	60	60
850	Excavating, Grading Oprs.	264	440	11	19	30	90	0	90
840	Painters & Paperhangers	749	830	37	16	53	159	0	159
842	Plasters	207	270	6	1	7	21	-	21
862	Plumbers & Pipefitters	603	820	22	24	46	138	0	138
866	Roofers & Slaters	88	140	3	0	3	9	-	9
899	Structural Metal Workers	22	40	1	0	1	3	0	3
	Foremen, (N.E.C.)	2,541	3,680	92	36	128	384	-	384
	Metalwkrg. Craftsmen	1,695	1,830	45	73	118	354	101	253
610	Blacksmiths, Forgemen, Hammermen	43	50	1	2	3	9	0	9
805	Boilermakers	11	10	0	0	0	0	0	0
504	Heat Treaters, Annealers	45	40						
600	Machinists	914	950	23	19	42	126	92	34
638	Millwrights	73	100	2	2	4	12	0	12
804	Sheet Mtl. Wkrs.	165	220	5	2	7	21	9	12
601	Toolmakers, Diemakers	443	460	11	20	31	93	0	93
	Mechanics & Repairmen	3,863	6,200	155	142	297	891	103	788
827	Air Condt. Heating & Refrigmen.	75	100	2	2	4	12	0	12
621	Airplane	164	50	1	0	1	3	0	3
620	Motor Vehicles	1,307	1,850	46	55	101	303	68	235
633	Office Machine Repairmen	45	100	2	6	8	24	0	24
720	Radio & TV Repairmen	136	200	5	4	9	27	0	27
	Other Mechanics & Repairmen	2,136	3,900	93	54	147	441	35	406
	Printing Trades Craftsmen	812	860	21	4	25	75	46	29
650	Compositors & Typesetters	559	480	12	0	12	36	46	-10
974-5	Electro & Stereotypers	12	20	0	0	0	0	0	0
971-2	Engravers & Lithographers	61	110	2	2	4	12	0	12
651	Pressmen & Plate Printers	180	250	6	2	8	24	0	24
	Other Craftsmen & Kindred Workers	3,067	3,970	95	55	150	450	565	-115
526	Bakers	190	250	6	2	8	24	0	24
660	Cabinetmakers	150	180	4	2	6	18	38	-20
921	Cranesmen, Derrickmen, Hoistmen	180	280	7	4	11	33	-	33
168	Inspectors	178	290	7	2	9	27	0	27
700	Jewelers, Watchmkrs, Gold & Silversmiths	48	70	1	0	1	3	88	-85
821	Linemen & Servicemen	407	540	13	8	21	63	0	63
628	Loom Fixers	67	60	1	0	1	3	-	3
711	Opticians, Lens Grinders & Polishers	12	20	0	0	0	0	0	0
777	Pattern & Model Mkrs., Except Paper	93	130	3	1	4	12	0	12
950	Stationary Engineers	298	330	8	1	9	27	0	27
780	Upholsters	91	140	3	2	5	15	0	15
	Craftsmen (N.E.C.)	1,353	1,680	90	36	126	378	439	-61
	OPERATIVES & KINDRED WORKERS	28,766	35,900	1,077	-323	754	2,262	683	1,579
	Apprentices	173	240	6	9	15	45	-	45
739	Assemblers	1,511	1,860	-139	-84	-0	-0	-	0
720	Checkers, Examiners & Inspectors, Mfg.	1,498	2,430	77	24	101	303	-	303
906	Deliverymen, Routemen, Cab Drivers	836	1,110	31	11	42	126	-	126
502	Furnacemen, Smeltermen & Pourers	133	140	3	-1	2	6	-	6
504	Heaters, Metal	4	10	0	0	0	0	-	0
361	Laundry & Dry Cleaning	349	400	20	5	25	75	0	75
939	Mine Operatives, Mine Laborers (N.E.C.)	235	180	4	0	4	12	0	12
316	Meat Cutters, Exc. Slaughter & Packing House	339	450	11	1	12	36	0	36
952	Power Station Operators	75	100	2	0	2	6	0	6
904	Truck & Tractor Drivers	3,019	4,200	105	84	189	567	0	567
819	Welders & Flame Cutters	682	980	24	19	43	129	0	129
580	✓ Semiskilled Textile Occup.	3,837	4,440	222	-8	214	642	281	361

TABLE 7-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	153	160	6	0	6	18	0	18
689	Sewers & Stitchers, Mfg.	3,503	4,100	164	-4	160	480	277	203
682	Spinners, Textile	11	10	0	0	0	0	-	0
683	Weavers, Textile	170	170	17	0	17	51	4	47
	Other Operatives (N.E.C.)	16,075	19,360	1,200	-58	1,142	3,426	402	3,024
	SERVICE WORKERS, PRIVATE HOUSEHOLD	2,311	2,950	115	2	117	351	-	351
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	8,170	13,200	924	435	1,359	4,077	389	3.688
	Protective Service Workers	794	1,200	49	39	88	264	0	264
373	Firemen, Fire Protection	111	170	5	4	9	27	-	27
375	Policemen , Marshals	210	400	13	17	30	90	0	90
376	Guards, Watchmen	473	630	18	17	35	105	-	105
	Waiters, Cooks & Bartenders	3,326	5,400	588	189	777	2,331	7	2,324
312	Bartenders	322	470	14	12	26	78	0	78
314	Cooks	763	1,220	67	54	121	363	7	356
317	Counter & Fountain Workers	267	550	27	22	49	147	0	147
311	Kitchen Workers (N.E.C.)	645	1,010	46	38	84	252	0	252
311	Waiters & Waitresses	1,329	2,150	45	32	77	231	0	231
	Other Service Workers	4,050	6,600	277	145	422	1,266	382	884
355	Attendants, Hospital & Inst.	470	1,200	72	54	126	378	99	279
330	Barbers	273	440	11	4	15	45	1	44
381	Charwomen & Cleaners	370	540	27	5	32	96	0	96
332	Hairdressers & Cosmetologists	407	760	45	22	67	201	2	199
382	Janitors & Sextons	909	1,100	77	11	88	176	0	176
354	Practical Nurses	427	900	45	54	99	297	280	17
359	Other Service Workers (N.E.C.)	1,194	1,600	54	61	115	345	0	345
	LABORERS, EXCLUDING FARM & MINE	5,335	5,350	138	-155	-17	-51	-	-51
	OCCUPATIONS NOT REPORTED	4,543							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Lancaster Labor Market Area includes Lancaster County.

TABLE 8

PENNSYLVANIA MANPOWER AND TRAINING DATA

Philadelphia Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	1,384,055	1,820,000	66,495	27,451	93,946	281,838	70,084	211,754
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	164,101	284,310	8,244	11,372	19,616	58,848	13,205	45,643
	Engineers, Technical	22,089	43,600	1,089	1,744	2,833	8,499	1,027	7,472
002	Engineers, Aeronautical	495	690	16	27	43	129	20	109
008	Engineers, Chemical	1,322	2,360	57	97	154	462	73	389
005	Engineers, Civil	2,569	4,770	118	189	307	921	37	884
003	Engineers, Electrical	5,283	10,900	271	478	749	2,247	125	2,122
012	Engineers, Industrial	2,620	6,110	150	242	392	1,176	29	1,147
007	Engineers, Mechanical	4,488	8,400	208	334	542	1,626	97	1,529
011	Engineers, Metallurgical	466	970	23	41	64	192	14	178
010	Engineers, Mining	36	40	0	0	0	0	-	0
	Engineers, Sales	2,364	3,690	91	145	236	708	0	708
	Other Engineers Technical	2,446	5,670	139	225	364	1,092	632	460
	Natural Scientists	3,791	8,580	213	341	554	1,662	115	1,547
040	Agricultural Scientists	67	160	2	4	6	18	98	-80
041	Biological Scientists	313	840	19	32	51	153	-	153
022	Chemists	2,712	5,770	115	230	345	1,035	-	1,035
024	Geologists & Geophysicists	43	70	0	0	0	0	-	0
020	Mathematicians	196	530	12	19	31	93	-	93
023	Physicists	418	1,110	25	42	67	201	-	201
	Other Natural Scientists	42	100	1	1	2	6	17	-11
	Technicians Excl. Medical & Dental	12,994	27,990	865	1,258	2,123	6,369	2,563	3,776
017	Designers	2,379	4,460	132	176	308	924	65	859
726	Electrical & Electronic	2,874	5,870	144	292	436	1,308	2,209	-901
193	Radio Operators	303	430	9	10	19	57	0	57
018	Surveyors	509	990	23	37	60	180	0	180
	Technicians, Other	6,929	16,240	550	744	1,294	3,882	289	3,593
	Medical, Other Health Workers	33,030	62,310	1,930	2,491	4,421	13,263	3,044	10,219
	Chiropractors & Therapists	1,150	1,450	38	59	97	291	0	291
072	Dentists	2,123	3,370	83	134	217	651	-	651
077	Dietitians & Nutritionists	693	4,340	38	41	79	237	0	237
075	Nurses, Professional	12,941	24,500	685	905	1,590	4,770	622	4,148
079	Nurses, Student	1,937	4,410	176	176	352	1,056	0	1,056
079	Optometrists	364	645	15	25	40	120	-	120
071	Osteopaths	193	1,110	27	44	71	213	-	213
074	Pharmacists	2,620	3,100	76	124	200	600	-	600
070	Physicians & Surgeons	7,047	11,485	285	480	765	2,295	-	2,295
045	Psychologists	335	1,060	28	42	70	210	-	210
079	Technicians, Medical & Dental	3,449	9,800	440	440	880	2,640	2,422	218
073	Veterinarians	178	410	9	15	24	72	-	72
	Teachers	31,272	54,420	1,881	2,689	4,570	13,710	379	13,331
092	Teachers, Elementary	15,342	21,800	827	891	1,718	5,154	-	5,154
091	Teachers, Secondary	8,900	17,360	588	658	1,246	3,738	-	3,738
099	Teachers, Other Excl. College	3,336	6,620	203	264	467	1,401	379	1,022
090	Teachers, College	3,694	8,010	246	320	566	1,698	-	1,698
	Social Scientists	1,027	1,830	44	71	115	345	1	344
050	Economists	399	610	14	23	37	111	-	111
020	Statisticians & Actuaries	567	1,090	25	42	67	201	-	201
059	Other Social Scientists	61	130	1	3	4	12	-	12
	Other Prof., Tech., & Kindred Workers	59,081	86,210	2,239	3,446	5,685	17,055	6,076	10,979
160	Accountants & Auditors	12,162	17,900	447	715	1,162	3,486	-	3,486
001	Architects	734	1,070	24	40	64	192	15	177
017	Draftsmen	6,718	11,440	285	501	786	2,358	1,657	701
110	Lawyers & Judges	4,352	6,050	150	240	390	1,170	-	1,170
166	Personnel & Labor Relation Wkrs.	2,285	4,420	109	175	284	852	-	852
195	Social & Welfare Workers (N.E.C.)	2,372	4,920	176	219	395	1,185	3	1,182
	Prof., Tech., Kindred Workers	30,256	40,410	1,048	1,573	2,621	7,863	4,401	3,462
421	FARMERS AND FARM WORKERS	10,549	9,100	317	-162	155	465	245	220
185	MANAGERS, OFFICIALS & PROPRIETORS	106,094	143,180	3,864	-570	3,294	9,882	1,326	8,556
200	CLERICAL & KINDRED WORKERS	235,429	341,500	11,951	8,195	20,146	60,438	29,590	30,848
217	Accounting Clerks & Bkprs.	17,255	23,210	714	579	1,297	3,891	5,863	1,972
212	Bank Tellers	2,490	5,270	177	124	301	903	0	903
211	Cashiers	9,921	20,270	769	484	1,253	3,759	154	3,605
219	Office Machine Operators	9,558	23,290	976	697	1,673	5,019	2,078	2,941
232	Postal Clerks	5,854	6,240	160	147	307	912	-	921
237	Receptionists	2,489	3,940	156	117	273	819	586	233
201	Secretaries	37,481	61,960	2,600	1,982	4,582	13,746	8,322	5,424
222	Shipping & Receiving Clerks	9,966	10,390	268	247	515	1,545	22	1,523

TABLE 8-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	5,391	8,800	366	278	644	1,932	2,021	89
223	Stock Clerks & Storekeepers	7,969	16,250	648	485	1,133	3,399	128	3,271
235	Telephone Operators	8,221	9,540	426	198	624	1,872	0	1,872
203	Typists	16,701	25,460	1,144	583	1,727	5,181	3,520	1,661
209	Other Clerical & Kindred Workers	101,933	126,880	3,677	2,282	5,959	17,877	6,896	10,981
250	SALES WORKERS	105,629	144,320	4,472	1,730	6,202	18,606	4,063	14,543
258	Advertising Agents & Salesman	571	860	21	10	31	93	3,826	-3,733
297	Demonstrators	504	710	19	6	25	75	179	-104
250	Insurance Agents, Brokers & Underwriters	8,412	11,160	288	128	416	1,248	33	1,215
251	Real Estate Agents & Brokers	3,646	5,410	144	67	211	633	-	633
259	Stock & Bond Salesmen	1,200	1,180	11	3	14	42	-	42
	Other Sales Workers (N.E.C.)	91,296	125,000	3,872	1,498	5,370	16,110	25	16,085
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	193,917	260,560	7,294	5,211	12,505	37,515	10,524	26,991
	Construction Craftsmen	45,350	59,560	1,963	1,247	3,210	9,630	1,963	7,667
861	Brickmasons, Stone, Tile	3,981	4,890	236	76	312	936	44	892
860	Carpenters	10,849	13,040	492	235	727	2,181	532	1,649
820	Electricians	7,791	10,470	301	249	550	1,650	674	976
850	Excavating, Grading Oprs.	1,616	3,090	80	133	213	639	59	580
840	Painters & Paperhangers	8,005	9,070	406	180	586	1,758	243	1,515
842	Plasters	1,284	1,810	44	6	50	150	-	150
862	Plumbers & Pipefitters	8,559	12,070	323	360	683	2,049	247	1,802
866	Roofers & Slaters	1,447	2,280	56	9	65	195	-	195
399	Structural Metal Workers	1,817	2,840	69	26	95	285	164	121
	Foremen, (N.E.C.)	27,212	41,830	1,044	417	1,461	4,383	-	4,383
	Metalwkrg. Craftsmen	25,780	28,820	718	1,151	1,869	5,607	1,606	4,001
610	Blacksmiths, Forgemen, Hammermen	486	540	12	26	38	114	0	114
805	Boilermakers	707	780	18	6	24	72	0	72
504	Heat Treaters, Annealers	508	470	11	0	11	33	-	33
600	Machinists	14,492	15,390	384	306	690	2,070	1,330	740
638	Millwrights	975	1,430	34	27	61	183	105	78
804	Sheet Mtl. Wkrs.	3,870	5,030	124	48	172	516	146	370
601	Toolmakers, Diemakers	4,742	5,180	126	231	357	1,071	25	1,046
	Mechanics & Repairmen	45,776	79,270	1,979	1,821	3,800	11,400	5,433	5,967
827	Air Condt. Heating & Refrigmen.	1,442	2,070	50	39	89	267	1,165	898
621	Airplane	855	1,180	27	9	36	108	1	107
620	Motor Vehicles	12,364	18,380	457	550	1,007	3,021	3,055	-34
633	Office Machine Repairmen	612	1,250	30	75	105	315	148	167
720	Radio & TV Repairmen	1,981	2,960	72	58	130	390	491	101
	Other Mechanics & Repairmen	28,522	53,430	1,280	745	2,025	6,075	573	5,502
	Printing Trades Craftsmen	9,404	10,240	254	48	302	906	570	336
650	Compositors & Typesetters	5,493	4,830	119	2	121	363	436	73
974-5	Electro & Stereotypers	376	560	13	0	13	39	86	47
971-2	Engravers & Lithographers	1,217	1,620	38	32	70	210	48	162
651	Pressmen & Plate Printers	2,318	3,230	78	24	102	306	0	306
	Other Craftsmen & Kindred Workers	40,589	40,840	977	570	1,547	4,641	952	3,689
526	Bakers	3,561	4,630	113	48	161	483	44	439
660	Cabinetmakers	1,207	1,500	36	20	56	168	417	249
921	Cranesmen, Derrickmen, Hoistmen	2,931	4,820	119	79	198	594	-	594
168	Inspectors	2,124	3,550	87	34	121	363	0	363
700	Jewelers, Watchmkrs, Gold & Silversmiths	681	910	20	7	27	81	0	81
821	Linemen & Servicemen	5,416	7,770	192	114	306	918	144	774
628	Loom Fixers	406	360	7	1	8	24	-	24
711	Opticians, Lens Grinders & Polishers	514	710	16	2	18	54	0	54
777	Pattern & Model Mkrs., Except Paper	1,280	1,880	46	17	63	189	116	73
950	Stationary Engineers	7,153	8,330	206	79	285	855	19	836
780	Upholsters	1,139	1,830	43	24	67	201	88	113
	Craftsmen (N.E.C.)	14,177	4,610	247	99	346	1,038	124	914
	OPERATIVES & KINDRED WORKERS	280,259	342,650	13,759	-3,087	10,672	32,016	7,209	24,807
	Apprentices	1,793	2,540	61	100	161	483	-	483
739	Assemblers	11,042	15,500	464	-1,161	-697	-2,091	-	-2,091
720	Checkers, Examiners & Inspectors, Mfg.	11,182	20,850	666	207	873	2,619	-	2,619
906	Deliverymen, Routemen, Cab Drivers	15,186	21,650	604	216	820	2,460	-	2,460
502	Furnacemen, Smeltermen & Pourers	1,124	1,360	33	-11	22	66	-	66
504	Heaters, Metal	138	250	5	0	5	15	-	15
361	Laundry & Dry Cleaning	7,397	8,730	436	110	546	1,638	5	1,633
939	Mine Operatives, Mine Laborers (N.E.C.)	339	340	6	0	6	18	0	18
316	Meat Cutters, Exc. Slaughter & Packing House	3,870	5,850	144	21	165	495	269	226
952	Power Station Operators	503	840	19	-3	16	48	41	7
904	Truck & Tractor Drivers	27,101	39,250	980	784	1,764	5,292	0	5,292
819	Welders & Flame Cutters	8,974	14,980	373	298	671	2,013	849	1,164
580	Semiskilled Textile Occup.	21,247	24,100	1,205	-46	1,159	3,477	5,196	-1,719

TABLE 8-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	1,456	1,960	76	0	76	228	286	-58
689	Sewers & Stitchers, Mfg.	17,563	20,500	819	-18	801	2,403	4,910	-2,507
682	Spinners, Textile	545	390	13	0	13	39	-	39
683	Weavers, Textile	1,682	1,250	128	0	128	384	0	384
	Other Operatives (N.E.C.)	149,117	187,070	11,596	-559	11,037	33,111	849	32,262
	SERVICE WORKERS, PRIVATE HOUSEHOLD	34,419	43,980	1,714	41	1,755	5,265	-	5,265
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	118,437	192,000	13,438	6,335	19,773	59,319	3,922	55,397
	Protective Service Workers	18,188	29,180	1,194	961	2,155	6,465	0	6,465
373	Firemen, Fire Protection	2,900	4,330	146	102	248	744	-	744
375	Policemen , Marshals	7,703	14,970	491	657	1,148	3,444	0	3,444
376	Guards, Watchmen	7,079	9,880	285	275	560	1,680	-	1,680
	Waiters, Cooks & Bartenders	42,276	69,950	7,623	2,446	10,069	30,207	730	29,477
312	Bartenders	5,737	8,770	260	233	493	1,479	163	1,316
314	Cooks	7,992	13,300	731	597	1,327	3,981	478	3,503
317	Counter & Fountain Workers	4,366	9,440	471	376	847	2,541	0	2,541
311	Kitchen Workers (N.E.C.)	6,129	9,990	456	376	832	2,496	14	2,482
311	Waiters & Waitresses	16,217	28,470	596	425	1,021	3,063	75	2,988
	Other Service Workers	57,973	86,870	3,898	2,040	5,938	17,814	2,944	14,870
355	Attendants, Hospital & Inst.	5,630	16,460	987	740	1,727	5,181	930	4,251
330	Barbers	3,747	6,450	159	63	222	666	16	650
381	Charwomen & Cleaners	5,997	8,900	444	87	531	1,593	13	1,580
332	Hairdressers & Cosmetologists	6,233	12,540	750	375	1,125	3,375	666	2,709
382	Janitors & Sextons	9,287	12,370	864	122	986	2,958	53	2,905
354	Practical Nurses	5,063	12,900	645	774	1,419	4,257	1,266	2,991
359	Other Service Workers (N.E.C.)	18,788	23,250	764	858	1,622	4,866	248	4,618
	LABORERS, EXCLUDING FARM & MINE	56,582	58,240	1,442	-1,614	-172	-516	-	-516
	OCCUPATIONS NOT REPORTED	78,639							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Philadelphia Labor Market Area includes the following counties: Bucks, Chester, Delaware Montgomery and Philadelphia.

Note: Burlington, Camden and Gloucester counties, New Jersey, statistical data are not included in this table.

Expected values were estimated for 1960 census where data were not available, (Chester County).

TABLE 9

PENNSYLVANIA MANPOWER AND TRAINING DATA

Pittsburgh Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	832,138	952,000	32,847	14,073	46,920	140,760	59,004	81,756
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	100,535	152,500	4,422	6,100	10,522	31,566	10,491	21,075
	Engineers, Technical	14,574	22,780	567	910	1,477	4,431	450	3,981
002	Engineers, Aeronautical	15	25	0	0	0	0	0	0
008	Engineers, Chemical	973	1,345	31	55	86	258	73	185
005	Engineers, Civil	2,077	3,125	77	125	202	606	234	372
003	Engineers, Electrical	2,627	4,290	106	138	294	882	0	882
012	Engineers, Industrial	2,043	3,770	93	150	243	729	0	729
007	Engineers, Mechanical	2,315	3,440	84	137	221	663	0	663
011	Engineers, Metallurgical	1,861	2,900	71	125	196	588	67	521
010	Engineers, Mining	220	270	5	9	14	42	--	42
	Engineers, Sales	1,420	1,750	42	69	111	333	0	333
	Other Engineers Technical	1,023	1,865	46	73	119	357	76	281
	Natural Scientists	2,598	4,600	114	182	296	888	64	824
040	Agricultural Scientists	13	30	0	0	0	0	44	-44
041	Biological Scientists	86	180	4	6	10	30	--	30
022	Chemists	1,866	3,180	62	126	188	564	--	564
024	Geologists & Geophysicists	174	210	4	7	11	33	--	33
020	Mathematicians	101	250	5	9	14	42	--	42
023	Physicists	316	670	15	25	40	120	--	120
	Other Natural Scientists	42	80	1	2	3	9	20	-11
	Technicians Excl. Medical & Dental	7,118	12,550	387	564	951	2,853	2,959	-106
017	Designers	579	900	24	35	59	177	524	-347
726	Electrical & Electronic	1,182	2,000	48	98	146	438	2,209	-1,771
193	Radio Operators	374	395	8	10	18	54	0	54
018	Surveyors	422	650	15	24	39	117	0	117
	Technicians, Other	4,561	8,605	291	393	684	2,052	226	1,826
	Medical, Other Health Workers	20,224	32,220	966	1,287	2,283	6,849	1,021	5,828
	Chiropractors & Therapists	759	970	25	39	64	192	11	181
072	Dentists	1,297	1,745	43	69	112	336	--	336
077	Dietitians & Nutritionists	349	415	16	18	34	102	182	-80
075	Nurses, Professional	8,683	13,775	384	508	892	2,676	140	2,536
079	Nurses, Student	2,809	5,100	204	204	408	1,224	53	1,171
079	Optometrists	187	300	6	11	17	51	--	51
071	Osteopaths	24	70	1	2	3	9	--	9
074	Pharmacists	1,408	1,565	37	60	97	291	--	291
070	Physicians & Surgeons	2,969	4,095	101	170	271	813	--	813
045	Psychologists	215	430	10	16	26	78	--	78
079	Technicians, Medical & Dental	1,464	3,645	162	162	324	972	635	337
073	Veterinarians	60	110	1	2	3	9	--	9
	Teachers	21,105	30,150	1,053	1,506	2,559	7,677	91	7,586
092	Teachers, Elementary	10,989	12,900	489	528	1,017	3,051	--	3,051
091	Teachers, Secondary	6,534	10,450	355	396	751	2,253	--	2,253
099	Teachers, Other Excl. College	1,797	3,050	92	122	214	642	91	551
090	Teachers, College	1,805	3,750	114	149	263	789	--	789
	Social Scientists	499	710	17	28	45	135	5	130
050	Economists	221	270	6	10	16	48	--	48
020	Statisticians & Actuaries	271	430	9	16	24	72	--	72
059	Other Social Scientists	7	10	0	0	0	0	--	0
	Other Prof., Tech., & Kindred Workers	34,417	49,490	1,285	1,978	3,263	9,789	5,901	3,888
160	Accountants & Auditors	6,959	8,800	218	350	568	1,704	--	1,704
001	Architects	371	450	9	18	27	81	0	81
017	Draftsmen	5,230	7,500	187	329	516	1,548	2,307	-759
110	Lawyers & Judges	2,311	2,750	68	108	176	528	--	528
166	Personnel & Labor Relation Wkrs.	1,371	2,200	54	87	141	423	--	423
195	Social & Welfare Workers (N.E.C.)	1,192	2,200	77	97	174	522	0	522
	Prof., Tech., Kindred Workers	16,983	25,590	663	996	1,659	4,977	3,594	1,383
421	FARMERS AND FARM WORKERS	6,330	7,000	247	-126	121	363	225	138
185	MANAGERS, OFFICIALS & PROPRIETORS	58,227	67,700	1,826	-270	1,556	4,668	964	3,704
200	CLERICAL & KINDRED WORKERS	128,573	162,500	5,687	3,899	9,586	28,758	32,100	-3,342
217	Accounting Clerks & Bkprs.	8,786	10,150	313	252	565	1,695	5,098	-3,403
212	Bank Tellers	1,833	3,100	103	72	175	525	0	525
211	Cashiers	5,614	9,830	371	235	606	1,818	304	1,514
219	Office Machine Operators	3,978	8,630	361	257	618	1,854	2,584	-730
232	Postal Clerks	2,933	2,700	97	75	172	516	--	516
237	Receptionists	1,811	2,400	69	59	128	384	176	208
201	Secretaries	20,031	27,800	1,166	887	2,053	6,159	10,618	-4,459
222	Shipping & Receiving Clerks	4,664	4,300	109	101	210	630	0	630

TABLE 9-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	5,937	8,430	352	267	619	1,857	1,694	163
223	Stock Clerks & Storekeepers	4,255	7,600	303	227	530	1,590	61	1,529
235	Telephone Operators	4,448	4,500	200	93	293	879	0	879
203	Typists	5,159	7,180	321	164	485	1,455	4,157	-2,702
209	Other Clerical & Kindred Workers	59,124	65,880	1,908	1,184	3,092	9,276	7,408	1,868
250	SALES WORKERS	68,215	80,400	2,489	963	3,452	10,356	3,394	6,962
258	Advertising Agents & Salesmen	384	500	12	5	17	42	3,275	-3,233
297	Demonstrators	233	280	6	2	8	24	119	-95
250	Insurance Agents, Brokers & Underwriters	4,630	5,130	131	60	191	573	0	573
251	Real Estate Agents & Brokers	1,708	2,100	57	25	83	249	--	249
259	Stock & Bond Salesmen	385	460	4	1	5	15	--	15
	Other Sales Workers (N.E.C.)	60,815	71,930	2,224	860	3,084	9,252	0	9,252
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	137,141	151,500	4,241	3,030	7,271	21,813	6,993	14,820
	Construction Craftsmen	30,486	33,770	1,112	707	1,819	5,457	1,554	3,903
861	Brickmasons, Stone, Tile	3,942	4,100	204	64	268	804	78	726
860	Carpenters	7,247	7,080	217	105	322	966	489	477
820	Electricians	5,541	6,200	178	147	325	975	768	207
850	Excavating, Grading Oprs.	1,809	2,650	70	120	190	570	17	553
840	Painters & Paperhangers	3,691	3,610	161	71	232	696	77	619
842	Plasters	856	1,020	23	3	26	78	--	78
862	Plumbers & Pipefitters	6,380	5,348	170	190	360	1,080	68	1,012
866	Roofers & Slaters	856	1,160	28	4	32	96	--	96
899	Structural Metal Workers	1,196	1,570	37	13	50	150	57	93
	Foremen, (N.E.C.)	18,932	22,000	549	220	769	2,307	--	2,307
	Metalwkrg. Craftsmen	17,701	18,090	451	721	1,172	3,516	1,055	2,461
610	Blacksmiths, Forgemen, Hammermen	930	720	17	37	54	162	6	156
805	Boilermakers	905	840	19	6	25	75	7	68
504	Heat Treaters, Annealers	677	580	11	0	11	33	--	33
600	Machinists	8,840	8,650	215	234	449	1,347	914	433
638	Millwrights	3,215	4,040	100	80	180	540	0	540
804	Sheet Mtl. Wkrs.	1,245	1,460	34	13	47	141	88	53
601	Toolmakers, Diemakers	1,889	1,800	44	80	124	372	40	332
	Mechanics & Repairmen	29,709	40,320	907	926	1,933	5,799	3,490	2,309
827	Air Condt. Heating & Refrigmen.	777	920	22	16	38	114	160	-46
621	Airplane	291	330	8	6	14	42	343	-301
620	Motor Vehicles	8,120	10,060	250	301	551	1,653	1,840	-187
633	Office Machine Repairmen	399	720	17	42	59	177	0	177
720	Radio & TV Repairmen	1,001	1,650	40	32	72	216	190	26
	Other Mechanics & Repairmen	19,121	26,640	638	371	1,009	3,027	957	2,070
	Printing Trades Craftsmen	3,315	3,090	76	13	89	267	107	160
650	Compositors & Typesetters	2,063	1,550	37	1	38	114	107	7
974-5	Electro & Stereotypers	117	150	2	0	2	6	0	6
971-2	Engravers & Lithographers	394	500	10	8	18	54	0	54
651	Pressmen & Plate Printers	741	890	21	5	26	78	0	78
	Other Craftsmen & Kindred Workers	36,998	34,230	820	477	1,297	3,891	787	3,104
526	Bakers	1,926	2,250	55	24	79	237	103	134
660	Cabinetmakers	499	540	12	6	18	54	175	-121
921	Cranesmen, Derrickmen, Hoistmen	8,198	10,930	272	184	456	1,368	--	1,368
168	Inspectors	3,392	4,730	117	46	163	489	13	476
700	Jewelers, Watchmkrs, Gold & Silversmiths	282	340	7	2	9	27	6	21
821	Linemen & Servicemen	3,380	4,100	101	60	161	483	0	483
628	Loom Fixers	0	0	0	0	0	0	--	0
711	Opticians, Lens Grinders & Polishers	308	370	8	1	9	27	11	16
777	Pattern & Model Mkrs., Except Paper	861	1,130	27	9	36	108	199	91
950	Stationary Engineers	5,161	5,050	125	24	149	447	10	437
780	Upholsters	297	400	8	5	13	39	19	20
	Craftsmen (N.E.C.)	12,694	4,390	237	96	333	999	251	748*
	OPERATIVES & KINDRED WORKERS	45,915	154,000	4,620	-1,385	3,235	9,705	1,678	8,027
	Apprentices	1,399	1,670	41	66	107	321	--	321
735	Assemblers	3,559	4,400	131	-329	-198	-594	--	-594
720	Checkers, Examiners & Inspectors, Mfg.	5,857	8,400	267	82	349	1,047	--	1,047
906	Deliverymen, Routemen, Cab Drivers	6,563	7,900	228	81	309	927	--	927
502	Furnacemen, Smeltermen & Pourers	4,175	3,730	91	-35	56	168	--	168
504	Heaters, Metal	1,074	1,280	29	2	31	93	--	93
361	Laundry & Dry Cleaning	4,327	4,390	218	56	274	822	14	808
939	Mine Operatives, Mine Laborers (N.E.C.)	5,745	5,250	130	-11	120	360	0	360
316	Meat Cutters, Exc. Slaughter & Packing House	2,517	2,920	72	10	82	246	46	200
952	Power Station Operators	460	550	12	-2	10	30	63	-33
904	Truck & Tractor Drivers	19,144	24,100	595	476	1,071	3,213	0	3.213
819	Welders & Flame Cutters	7,349	9,300	231	185	416	1,248	877	371
580	Semiskilled Textile Occup.	1,366	1,390	68	-1	67	201	250	-49

TABLE 9-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	12	17	0	0	0	0	0	0
689	Sewers & Stitchers, Mfg.	1,332	1,360	53	0	53	159	250	-91
682	Spinners, Textile	4	3	0	0	0	0	0	0
683	Weavers, Textile	18	10	1	0	1	3	0	3
	Other Operatives (N.E.C.)	82,380	78,720	4,879	-235	4,644	13,932	428	13,504
	SERVICE WORKERS, PRIVATE HOUSEHOLD	13,311	15,000	584	13	597	1,791	--	1,791
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	73,169	104,400	7,307	3,444	10,751	32,253	3,272	28,981
	Protective Service Workers	9,408	14,000	572	460	1,032	3,096	0	3,096
373	Firemen, Fire Protection	1,461	2,000	66	46	112	236	--	236
375	Policemen , Marshals	4,032	7,400	242	324	566	1,698	0	1,698
376	Guards, Watchmen	3,915	4,600	132	126	258	774	--	774
	Waiters, Cooks & Bartenders	25,318	36,000	3,922	1,258	5,190	15,540	542	14,998
312	Bartenders	4,094	5,260	156	159	295	885	0	885
314	Cooks	5,301	7,460	409	333	742	2,226	470	1,756
317	Counter & Fountain Workers	1,915	3,450	172	136	308	924	12	912
311	Kitchen Workers (N.E.C.)	3,937	5,430	248	204	452	1,356	27	1,329
311	Waiters & Waitresses	10,071	14,400	301	214	515	1,545	33	1,512
	Other Service Workers	38,443	54,400	2,282	1,195	3,477	10,431	2,665	7,766
355	Attendants, Hospital & Inst.	4,960	10,800	647	485	1,132	3,396	1,108	2,288
330	Barbers	2,196	3,130	76	31	107	321	11	310
381	Charwomen & Cleaners	3,225	4,530	225	44	269	807	0	807
332	Hairdressers & Cosmetologists	3,987	6,600	395	197	592	1,776	426	1,350
382	Janitors & Sextons	9,741	10,340	719	102	821	2,463	0	2,463
354	Practical Nurses	2,492	5,000	250	300	550	1,650	1,120	530
359	Other Service Workers (N.E.C.)	11,842	14,000	464	519	983	2,949	65	2,884
	LABORERS, EXCLUDING FARM & MINE	65,987	57,000	1,424	-1,595	-171	-513	--	-513
	OCCUPATIONS NOT REPORTED	34,735							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Pittsburgh Labor Market Area includes the following counties: Allegheny, Beaver, Washington, and Westmoreland.

TABLE 10

PENNSYLVANIA MANPOWER AND TRAINING DATA

Reading Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	117,100	140,600	4,780	1,441	6,221	18,663	5,607	13,056
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	9,959	15,500	449	620	1,069	3,207	887	2,320
	Engineers, Technical	964	1,630	40	65	105	315	58	257
002	Engineers, Aeronautical	0	0	0	0	0	0	0	0
008	Engineers, Chemical	37	60	1	2	3	9	38	-31
005	Engineers, Civil	137	220	5	8	13	39	0	39
003	Engineers, Electrical	238	400	10	17	27	81	5	76
012	Engineers, Industrial	149	290	7	11	18	54	0	54
007	Engineers, Mechanical	212	330	8	13	21	63	8	55
011	Engineers, Metallurgical	79	130	3	5	8	24	7	17
010	Engineers, Mining	4	5	0	0	0	0	-	0
	Engineers, Sales	27	40	1	1	2	6	0	6
	Other Engineers Technical	81	155	3	6	9	27	0	27
	Natural Scientists	191	360	9	14	23	69	12	57
040	Agricultural Scientists	4	10	0	0	0	0	7	-7
041	Biological Scientists	9	20	0	0	0	0	-	0
022	Chemists	163	290	5	11	16	48	-	48
024	Geologists & Geophysicists	0	0	0	0	0	0	-	0
020	Mathematicians	3	10	0	0	0	0	-	0
023	Physicists	0	5	0	0	0	0	-	0
	Other Natural Scientists	12	25	0	1	1	3	5	-3
	Technicians Excl. Medical & Dental	839	1,590	49	71	120	360	191	169
017	Designers	90	150	4	6	10	30	18	12
726	Electrical & Electronic	124	220	5	11	16	48	168	120
193	Radio Operators	19	30	0	0	0	0	0	0
018	Surveyors	58	90	2	3	5	15	0	15
	Technicians, Other	548	1,100	37	50	87	261	5	246
	Medical, Other Health Workers	2,258	4,100	127	164	291	873	67	806
	Chiropractors & Therapists	52	80	2	3	5	15	0	15
072	Dentists	122	180	4	7	11	33	-	33
077	Dietitians & Nutritionists	29	40	1	1	2	6	67	61
075	Nurses, Professional	1,003	2,000	56	74	130	390	0	390
079	Nurses, Student	425	720	28	28	56	168	0	168
079	Optometrists	19	30	0	1	1	3	-	3
071	Osteopaths	4	30	0	1	1	3	-	3
074	Pharmacists	92	100	2	4	6	18	-	18
070	Physicians & Surgeons	371	570	14	23	37	111	-	111
045	Psychologists	4	10	0	0	0	0	-	0
079	Technicians, Medical & Dental	120	310	13	13	26	78	0	78
073	Veterinarians	17	30	0	1	1	3	-	3
	Teachers	2,395	4,000	140	200	340	1,020	0	1,020
092	Teachers, Elementary	1,154	1,700	64	69	133	399	-	399
091	Teachers, Secondary	963	1,700	57	64	121	363	-	363
099	Teachers, Other Excl. College	177	300	9	12	21	63	0	63
090	Teachers, College	101	300	9	12	21	63	-	63
	Social Scientists	34	60	1	2	3	9	0	9
050	Economists	22	30	0	1	1	3	-	3
020	Statisticians & Actuaries	12	20	0	0	0	0	-	0
059	Other Social Scientists	0	10	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	3,278	3,760	97	150	247	741	559	182
160	Accountants & Auditors	545	710	17	28	45	135	-	135
001	Architects	46	60	1	2	3	9	0	9
017	Draftsman	486	720	18	31	49	147	244	-97
110	Lawyers & Judges	182	220	5	8	13	39	-	39
166	Personnel & Labor Relation Wkrs.	113	190	4	7	11	33	-	33
195	Social & Welfare Workers (N.E.C.)	104	200	7	9	16	48	0	48
	Prof., Tech., Kindred Workers	1,802	1,660	43	64	107	321	315	-6
421	FARMERS AND FARM WORKERS	3,902	4,200	147	-75	72	216	166	50
185	MANAGERS, OFFICIALS & PROPRIETORS	7,317	8,700	234	-34	200	600	46	554
200	CLERICAL & KINDRED WORKERS	13,360	18,500	647	444	1,091	3,273	3,239	34
217	Accounting Clerks & Bkprs.	893	1,060	32	26	58	174	712	-538
212	Bank Tellers	268	470	15	11	26	78	0	78
211	Cashiers	662	1,190	45	28	73	219	0	219
219	Office Machine Operators	410	910	38	27	65	195	350	155
232	Postal Clerks	180	180	4	4	8	24	-	24
237	Receptionists	102	140	5	4	9	27	0	27
201	Secretaries	2,172	3,100	130	99	229	687	1,085	-398
222	Shipping & Receiving Clerks	747	720	18	17	35	105	0	105

TABLE 10-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	328	480	20	15	35	105	69	36
223	Stock Clerks & Storekeepers	606	1,110	44	33	77	231	2	229
235	Telephone Operators	483	500	22	10	32	96	0	96
203	Typists	524	740	33	17	50	150	354	204
209	Other Clerical & Kindred Workers	5,985	7,900	229	142	371	1,113	667	446
250	SALES WORKERS	7,907	9,800	303	117	420	1,260	105	1,155
258	Advertising Agents & Salesmen	44	60	1	0	1	3	105	-102
297	Demonstrators	43	50	1	0	1	3	0	3
250	Insurance Agents, Brokers & Underwriters	731	830	21	9	30	90	0	90
251	Real Estate Agents & Brokers	170	220	5	2	7	21	-	21
259	Stock & Bond Salesmen	34	40	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	6,885	8,600	266	103	369	1,107	0	1,107
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	18,043	22,300	624	446	1,070	3,210	486	2,724
	Construction Craftsmen	3,691	4,110	135	86	221	663	93	570
861	Bricklayers, Stone, Tile	357	380	19	6	25	75	12	63
860	Carpenters	1,126	1,130	35	16	51	153	44	109
820	Electricians	507	580	16	13	29	87	14	73
850	Excavating, Grading Oprs.	261	390	10	17	27	81	7	74
840	Painters & Paperhangers	686	690	31	13	44	132	6	126
842	Plasters	132	160	4	0	4	12	-	12
862	Plumbers & Pipefitters	476	580	15	17	32	96	10	86
866	Roofers & Slaters	101	140	3	0	3	9	-	9
999	Structural Metal Workers	45	60	1	0	1	3	0	3
	Foremen, (N.E.C.)	2,721	3,390	84	33	351	1,053	-	1,053
	Metalwkrg. Craftsmen	2,249	2,160	54	86	140	420	120	300
610	Blacksmiths, Forgemen, Hammermen	63	50	1	2	3	9	0	9
805	Boilermakers	29	30	0	0	0	0	0	0
504	Heat Treaters, Annealers	148	120	3	0	3	9	-	9
600	Machinists	1,256	1,180	29	63	92	276	71	205
638	Millwrights	40	50	1	1	2	6	0	6
804	Sheet Mtl. Wkrs.	210	250	6	2	8	24	0	24
601	Toolmakers, Diemakers	503	480	12	21	33	99	46	53
	Mechanics & Repairmen	4,643	6,970	174	160	334	1,002	164	838
827	Air Condt. Heating & Refrigmen.	120	150	3	3	6	18	0	18
621	Airplane	48	60	1	0	1	3	0	3
620	Motor Vehicles	1,251	1,590	39	47	86	258	107	151
633	Office Machine Repairmen	35	70	1	4	5	15	0	15
720	Radio & TV Repairmen	153	200	5	4	9	27	26	1
	Other Mechanics & Repairmen	3,036	4,900	117	68	185	555	31	524
	Printing Trades Craftsmen	468	450	11	2	13	39	10	29
650	Compositors & Typesetters	320	250	6	0	6	18	10	8
974-5	Electro & Stereotypers	5	5	0	0	0	0	0	0
971-2	Engravers & Lithographers	60	95	2	1	3	9	0	9
651	Pressmen & Plate Printers	83	100	2	0	2	6	0	6
	Other Craftsmen & Kindred Workers	4,271	5,220	125	73	198	594	99	495
526	Bakers	311	370	9	4	13	39	0	39
660	Cabinetmakers	172	190	4	2	6	18	9	9
921	Cranesmen, Derrickmen, Hoistmen	472	650	16	11	27	81	-	81
168	Inspectors	325	470	11	4	15	45	75	-30
700	Jewelers, Watchmkrs, Gold & Silversmiths	64	80	2	0	2	6	0	6
821	Linemen & Servicemen	386	460	11	6	17	51	0	51
628	Loom Fixers	16	10	0	0	0	0	0	0
711	Opticians, Lens Grinders & Polishers	197	240	6	1	7	21	0	21
777	Pattern & Model Mkrs., Except Paper	189	230	5	2	7	21	0	21
950	Stationary Engineers	338	340	8	1	9	27	0	27
780	Upholsters	116	160	4	2	6	18	15	3
	Craftsmen (N.E.C.)	1,685	2,020	109	44	153	459	0	459
	OPERATIVES & KINDRED WORKERS	35,847	40,500	1,215	-364	851	2,553	336	2,217
	Apprentices	185	220	5	8	13	39	-	39
739	Assemblers	1,271	1,410	42	-105	-63	-189	-	-189
720	Checkers, Examiners & Inspectors, Mfg.	1,634	2,390	76	23	99	297	-	297
906	Deliverymen, Routemen, Cab Drivers	1,092	1,310	36	13	49	147	-	147
502	Furnacemen, Smeltermen & Pourers	350	320	8	-3	5	15	-	15
504	Heaters, Metal	23	30	0	0	0	0	-	0
361	Laundry & Dry Cleaning	672	700	35	9	44	132	0	132
939	Mine Operatives, Mine Laborers (N.E.C.)	194	140	3	0	3	9	0	9
316	Meat Cutters, Exc. Slaughter &Packing House	257	310	7	1	8	24	0	24
952	Power Station Operators	37	50	1	0	1	3	0	3
904	Truck & Tractor Drivers	2,849	3,580	89	71	160	480	0	480
819	Welders & Flame Cutters	1,183	1,530	38	30	68	204	40	164
580	Semiskilled Textile Occup.	6,644	6,890	344	-13	331	993	292	701

TABLE 10-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	1,803	1,900	76	-1	75	225	12	213
689	Sewers & Stitchers, Mfg.	4,690	4,900	196	-4	192	576	280	256
682	Spinners, Textile	51	30	1	0	1	3	-	3
683	Weavers, Textile	100	60	6	0	6	18	0	18
	Other Operatives (N.E.C.)	19,456	21,620	1,340	-64	1,276	3,828	4	3,824
	SERVICE WORKERS, PRIVATE HOUSEHOLD	1,530	1,900	74	1	75	225	-	225
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	8,837	13,500	945	445	1,390	4,170	342	3,828
	Protective Service Workers	956	1,400	57	46	103	309	0	309
373	Firemen, Fire Protection	68	150	5	3	8	24	-	24
375	Policemen , Marshals	296	550	18	24	42	126	0	126
376	Guards, Watchmen	592	700	20	19	39	117	-	117
	Waiters, Cooks & Bartenders	3,890	5,670	618	198	816	2,448	44	2,404
312	Bartenders	552	730	21	19	40	120	0	120
314	Cooks	937	1,350	74	60	134	402	44	358
317	Counter & Fountain Workers	289	530	26	21	47	141	0	141
311	Kitchen Workers (N.E.C.)	672	950	43	36	79	237	0	237
311	Waiters & Waitresses	1,440	2,110	44	31	75	225	0	225
	Other Service Workers	3,991	5,830	244	128	372	1,116	298	818
355	Attendants, Hospital & Inst.	480	1,100	66	49	115	345	63	282
330	Barbers	318	460	11	4	15	45	3	42
381	Charwomen & Cleaners	409	540	27	5	32	96	0	96
332	Hairdressers & Cosmetologists	578	980	58	29	87	261	13	248
382	Janitors & Sextons	1,038	1,130	79	11	90	270	0	270
354	Practical Nurses	182	500	25	30	55	165	219	-54
359	Other Service Workers (N.E.C.)	986	1,720	36	41	77	231	0	231
	LABORERS, EXCLUDING FARM & MINE	5,648	5,700	142	-159	-17	-51	0	-51
	OCCUPATIONS NOT REPORTED	4,750							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Reading Labor Market Area includes Berks County.

TABLE 11

PENNSYLVANIA MANPOWER AND TRAINING DATA

Scranton Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	83,707	95,800	3,242	1,071	4,313	12,939	4,102	8,837
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	7,398	11,200	324	448	772	2,316	366	1,950
	Engineers, Technical	550	860	21	34	55	165	5	160
002	Engineers, Aeronautical	4	5	0	0	0	0	0	0
008	Engineers, Chemical	12	20	0	0	0	0	0	0
005	Engineers, Civil	124	190	4	7	11	33	0	33
003	Engineers, Electrical	161	260	6	11	17	51	0	51
012	Engineers, Industrial	56	100	2	4	6	18	0	18
007	Engineers, Mechanical	95	140	3	5	8	24	0	24
011	Engineers, Metallurgical	5	10	0	0	0	0	0	0
010	Engineers, Mining	27	25	0	0	0	0	-	0
	Engineers, Sales	29	40	1	1	2	6	0	6
	Other Engineers Technical	37	70	1	2	3	9	5	4
	Natural Scientists	50	110	2	4	6	18	1	17
040	Agricultural Scientists	0	0	0	0	0	0	1	-1
041	Biological Scientists	0	5	0	0	0	0	-	0
022	Chemists	42	70	1	2	3	9	-	9
024	Geologists & Geophysicists	0	5	0	0	0	0	-	0
020	Mathematicians	4	10	0	0	0	0	-	0
023	Physicists	0	5	0	0	0	0	-	0
	Other Natural Scientists	4	15	0	0	0	0	0	0
	Technicians Excl. Medical & Dental	340	590	18	26	44	132	99	33
017	Designers	37	60	1	2	3	9	0	9
726	Electrical & Electronic	95	160	4	8	12	36	98	-62
193	Radio Operators	8	10	0	0	0	0	1	-1
018	Surveyors	69	110	2	4	6	18	0	18
	Technicians, Other	131	250	8	11	19	57	0	57
	Medical, Other Health Workers	1,805	3,370	104	134	238	714	22	692
	Chiropractors & Therapists	50	65	1	2	3	9	0	9
072	Dentists	168	190	4	7	11	33	-	33
077	Dietitians & Nutritionists	30	40	1	1	2	6	0	6
075	Nurses, Professional	770	1,600	44	59	103	309	16	293
079	Nurses, Student	239	500	20	20	40	80	0	80
079	Optometrists	22	30	0	1	1	3	-	3
071	Osteopaths	4	10	0	0	0	0	-	0
074	Pharmacists	113	120	3	4	7	21	-	21
070	Physicians & Surgeons	241	380	9	15	24	72	-	72
045	Psychologists	0	5	0	0	0	0	-	0
079	Technicians, Medical & Dental	164	420	18	18	36	108	6	102
073	Veterinarians	4	10	0	0	0	0	-	0
	Teachers	2,081	2,500	87	125	212	636	0	636
092	Teachers, Elementary	1,071	1,200	45	49	94	282	-	282
091	Teachers, Secondary	505	600	20	22	42	126	-	126
099	Teachers, Other Excl. College	245	400	12	16	28	84	0	84
090	Teachers, College	260	300	9	12	21	63	-	63
	Social Scientists	36	60	1	2	3	9	0	9
050	Economists	12	15	0	0	0	0	-	0
020	Statisticians & Actuaries	24	40	1	1	2	6	-	6
059	Other Social Scientists	0	5	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	2,536	3,710	96	148	244	732	239	493
160	Accountants & Auditors	442	560	14	22	36	108	-	108
001	Architects	16	20	0	0	0	0	0	0
017	Draftsmen	266	380	9	16	25	75	163	-88
110	Lawyers & Judges	185	220	5	8	13	39	-	39
166	Personnel & Labor Relation Wkrs.	90	140	3	5	8	24	-	24
195	Social & Welfare Workers (N.E.C.)	169	310	11	13	24	72	0	72
	Prof., Tech., Kindred Workers	1,368	2,080	54	81	135	405	76	329
421	FARMERS AND FARM WORKERS	863	800	28	-14	14	42	0	42
185	MANAGERS, OFFICIALS & PROPRIETORS	5,782	6,700	180	-26	154	462	225	237
200	CLERICAL & KINDRED WORKERS	11,181	14,600	511	350	861	2,583	3,042	-459
217	Accounting Clerks & Bkprs.	1,032	1,200	37	30	67	201	661	-460
212	Bank Tellers	162	270	9	6	15	45	0	45
211	Cashiers	513	890	33	21	54	162	0	162
219	Office Machine Operators	354	760	31	22	53	159	299	-140
232	Postal Clerks	278	260	6	6	12	36	-	36
237	Receptionists	95	130	5	3	8	24	0	24
201	Secretaries	1,236	1,710	71	54	125	375	1,151	776
222	Shipping & Receiving Clerks	616	600	15	14	29	87	60	27

TABLE 11-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	306	450	18	14	32	96	114	-18
223	Stock Clerks & Storekeepers	371	660	26	19	45	135	0	135
235	Telephone Operators	462	460	20	9	29	87	0	87
203	Typists	349	490	22	11	33	99	275	176
209	Other Clerical & Kindred Workers	5,407	6,720	194	120	314	942	482	460
250	SALES WORKERS	6,841	8,000	248	96	344	1,032	1	1,031
258	Advertising Agents & Salesmen	59	70	1	1	2	6	0	6
297	Demonstrators	21	30	0	0	0	0	1	-1
250	Insurance Agents, Brokers & Underwriters	627	690	17	8	25	75	0	75
251	Real Estate Agents & Brokers	63	80	2	1	3	9	-	9
259	Stock & Bond Salesmen	32	40	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	6,039	7,090	219	85	304	912	0	912
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	10,964	13,400	375	268	643	1,929	290	1,639
	Construction Craftsmen	1,979	2,190	72	45	117	351	140	211
861	Bricklayers, Stone, Tile	104	110	5	1	6	18	0	18
860	Carpenters	591	590	18	8	26	78	30	48
820	Electricians	281	320	9	7	16	48	8	40
850	Excavating, Grading Oprs.	209	300	8	13	21	63	102	39
840	Painters & Paperhangers	353	340	15	6	21	63	0	63
842	Plasters	60	60	1	0	1	3	-	3
862	Plumbers & Pipefitters	268	320	8	9	17	51	0	51
866	Roofers & Slaters	58	80	2	0	2	6	-	6
399	Structural Metal Workers	55	70	1	0	1	3	0	3
	Foremen, (N.E.C.)	1,596	2,000	50	20	70	210	-	210
	Metalwkrg. Craftsmen	1,149	1,185	29	47	76	228	63	165
610	Blacksmiths, Forgemen, Hammermen	24	20	0	0	0	0	0	0
805	Boilermakers	11	15	0	0	0	0	0	0
504	Heat Treaters, Annealers	13	15	0	0	0	0	-	0
600	Machinists	779	790	19	15	34	102	63	39
638	Millwrights	9	15	0	0	0	0	0	0
804	Sheet Mtl. Wkrs.	110	130	3	1	4	12	0	12
601	Toolmakers, Diemakers	203	200	5	9	14	42	0	42
	Mechanics & Repairmen	3,168	4,370	109	100	209	627	47	580
827	Air Condt. Heating & Refrigmen.	63	70	1	1	2	6	11	-5
621	Airplane	14	15	0	0	0	0	0	0
620	Motor Vehicles	884	1,090	27	32	59	177	15	162
633	Office Machine Repairmen	30	55	1	3	4	12	0	12
720	Radio & TV Repairmen	144	180	4	3	7	21	20	1
	Other Mechanics & Repairmen	2,033	2,960	71	41	112	336	1	335
	Printing Trades Craftsmen	573	540	13	2	15	45	8	37
650	Compositors & Typesetters	358	270	6	0	6	18	8	10
974-5	Electro & Stereotypers	9	10	0	0	0	0	0	0
971-2	Engravers & Lithographers	27	50	1	1	2	6	0	6
651	Pressmen & Plate Printers	179	210	5	1	6	18	0	18
	Other Craftsmen & Kindred Workers	2,499	3,115	74	43	117	351	32	319
526	Bakers	355	410	10	4	14	42	0	42
660	Cabinetmakers	96	100	2	1	3	9	32	23
921	Cranesmen, Derrickmen, Hoistmen	75	100	2	1	3	9	-	9
168	Inspectors	342	480	12	4	16	48	0	48
700	Jewelers, Watchmkrs, Gold & Silversmiths	45	50	1	0	1	3	0	3
821	Linemen & Servicemen	303	350	10	8	18	54	0	54
628	Loom Fixers	58	50	1	0	1	3	-	3
711	Opticians, Lens Grinders & Polishers	28	40	1	0	1	3	0	3
777	Pattern & Model Mkrs., Except Paper	11	20	0	0	0	0	0	0
950	Stationary Engineers	207	215	5	1	6	18	0	18
780	Upholsters	64	90	2	1	3	9	0	9
	Craftsmen (N.E.C.)	915	1,210	65	26	91	273	0	273
	OPERATIVES & KINDRED WORKERS	26,420	28,400	852	-255	597	1,791	80	1,711
	Apprentices	81	90	2	3	5	15	-	15
739	Assemblers	911	980	29	-73	-44	-132	-	-132
720	Checkers, Examiners & Inspectors, Mfg.	1,098	1,560	49	15	64	192	-	192
906	Deliverymen, Routemen, Cab Drivers	770	900	25	9	34	102	-	102
502	Furnacemen, Smeltermen & Pourers	29	20	0	0	0	0	-	0
504	Heaters, Metal	0	0	0	0	0	0	-	0
361	Laundry & Dry Cleaning	407	410	20	5	25	75	0	75
939	Mine Operatives, Mine Laborers (N.E.C.)	1,666	250	6	0	6	18	0	18
316	Meat Cutters, Exc. Slaughter & Packing House	353	400	10	1	11	33	0	33
952	Power Station Operators	52	60	1	0	1	3	0	3
904	Truck & Tractor Drivers	2,966	3,620	90	72	162	486	0	486
819	Welders & Flame Cutters	692	870	21	17	38	114	4	110
580	Semiskilled Textile Occup.	4,441	4,360	218	-8	210	630	13	617

Table 11-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	16	20	0	0	0	0	0	0
689	Sewers & Stitchers, Mfg.	4,050	4,120	164	-4	160	480	13	467
682	Spinners, Textile	38	20	0	0	0	0	-	0
683	Weavers, Textile	337	200	20	0	20	60	0	60
	Other Operatives (N.E.C.)	12,955	14,880	922	-44	878	2,634	63	2,571
	SERVICE WORKERS, PRIVATE HOUSEHOLD	738	800	31	0	31	93	-	93
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	6,200	8,800	616	290	906	2,718	98	2,620
	Protective Service Workers	1,035	1,380	56	45	101	303	0	303
373	Firemen, Fire Protection	262	350	11	8	19	57	-	57
375	Policemen , Marshals	282	460	15	20	35	105	0	105
376	Guards, Watchmen	491	570	16	15	31	93	-	93
	Waiters, Cooks & Bartenders	2,147	3,080	335	107	442	1,326	0	1,326
312	Bartenders	531	680	20	18	38	114	0	114
314	Cooks	452	630	34	28	62	186	0	186
317	Counter & Fountain Workers	93	170	8	6	14	42	0	42
311	Kitchen Workers (N.E.C.)	366	500	23	19	42	126	0	126
311	Waiters & Waitresses	705	1,100	23	16	39	117	0	117
	Other Service Workers	3,018	4,340	243	125	368	1,104	98	1,006
355	Attendants, Hospital & Inst.	326	750	45	33	78	234	19	215
330	Barbers	273	380	9	3	12	36	6	30
381	Charwomen & Cleaners	430	530	26	5	31	93	0	93
332	Hairdressers & Cosmetologists	360	590	35	17	52	156	17	139
382	Janitors & Sextons	641	670	46	6	52	156	0	156
354	Practical Nurses	191	400	20	24	44	132	56	76
359	Other Service Workers (N.E.C.)	797	1,020	33	37	70	210	0	210
	LABORERS, EXCLUDING FARM & MINE	3,233	3,100	77	-86	-9	-27	-	-27
	OCCUPATIONS NOT REPORTED	4,087							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Scranton Labor Market Area includes all of Lackawanna County.

TABLE 12

PENNSYLVANIA MANPOWER AND TRAINING DATA

Wilkes-Barre--Hazleton Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	121,920	140,500	4,523	1,226	6,237	18,711	8,903	9,808
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	10,468	17,000	493	680	1,173	3,519	1,287	2,232
	Engineers, Technical	589	970	24	38	62	186	57	129
002	Engineers, Aeronautical	0	0	0	0	0	0	0	0
008	Engineers, Chemical	11	20	0	0	0	0	13	-13
005	Engineers, Civil	140	220	0	0	0	39	0	39
003	Engineers, Electrical	103	180	4	7	11	33	0	33
012	Engineers, Industrial	61	120	3	4	7	21	0	21
007	Engineers, Mechanical	100	160	4	6	10	30	0	30
011	Engineers, Metallurgical	14	20	0	0	0	0	0	0
010	Engineers, Mining	51	30	0	1	1	3	-	3
	Engineers, Sales	33	40	1	1	2	6	0	6
	Other Engineers Technical	76	180	4	7	11	33	44	-11
	Natural Scientists	73	140	3	5	8	24	6	18
040	Agricultural Scientists	0	0	0	0	0	0	4	-4
041	Biological Scientists	4	10	0	0	0	0	-	0
022	Chemists	57	100	2	4	6	18	-	18
024	Geologists & Geophysicists	0	0	0	0	0	0	-	0
020	Mathematicians	4	10	0	0	0	0	-	0
023	Physicists	8	15	0	0	0	0	-	0
	Other Natural Scientists	0	5	0	0	0	0	4	-4
	Technicians Excl. Medical & Dental	375	670	20	30	50	150	309	-159
017	Designers	40	60	1	2	3	9	0	9
726	Electrical & Electronic	90	160	4	8	12	36	263	-227
193	Radio Operators	20	30	0	0	0	0	0	0
018	Surveyors	86	140	3	5	8	24	46	-22
	Technicians, Other	139	280	9	12	21	63	0	63
	Medical, Other Health Workers	2,877	5,000	155	200	355	1,065	62	1,003
	Chiropractors & Therapists	61	100	2	4	6	18	0	18
072	Dentists	200	270	6	10	16	48	-	48
077	Dietitians & Nutritionists	30	40	1	1	2	6	23	-17
075	Nurses, Professional	1,289	2,300	64	85	149	447	0	447
079	Nurses, Student	418	800	32	32	64	192	0	192
079	Optometrists	30	50	1	2	3	9	-	9
071	Osteopaths	0	10	0	0	0	0	-	0
074	Pharmacists	206	250	6	10	16	48	-	48
070	Physicians & Surgeons	426	650	16	27	43	129	-	129
045	Psychologists	24	50	1	2	3	9	-	9
079	Technicians, Medical & Dental	172	450	20	20	40	120	39	81
073	Veterinarians	21	30	0	1	1	3	-	3
	Teachers	3,280	4,250	148	212	360	1,080	0	1,080
092	Teachers, Elementary	1,852	2,100	79	86	165	495	-	495
091	Teachers, Secondary	934	1,300	44	49	93	279	-	279
099	Teachers, Other Excl. College	287	500	15	20	35	105	0	105
090	Teachers, College	207	350	10	14	24	72	-	72
	Social Scientists	11	25	0	1	1	3	0	3
050	Economists	3	5	0	0	0	0	-	0
020	Statisticians & Actuaries	8	15	0	0	0	0	-	0
059	Other Social Scientists	0	5	0	0	0	0	-	0
	Other Prof., Tech., & Kindred Workers	5,945	3,263	154	237	391	1,173	853	320
150	Accountants & Auditors	600	780	19	31	50	150	-	150
001	Architects	16	20	0	0	0	0	0	0
017	Draftsmen	251	370	9	16	25	75	80	-5
110	Lawyers & Judges	278	330	8	13	21	63	-	63
166	Personnel & Labor Relation Wkrs.	112	180	4	7	11	33	-	33
195	Social & Welfare Workers (N.E.C.)	298	400	14	18	32	96	0	96
	Prof., Tech., Kindred Workers	1,708	3,865	96	150	246	738	547	191
421	FARMERS AND FARM WORKERS	1,289	900	31	-16	15	45	37	8
185	MANAGERS, OFFICIALS & PROPRIETORS	7,362	8,850	238	-35	203	609	419	190
200	CLERICAL & KINDRED WORKERS	13,378	18,500	647	444	1,091	3,273	5,015	-1,742
217	Accounting Clerks & Bkprs.	1,421	1,690	52	42	94	282	1,066	-784
212	Bank Tellers	243	430	14	10	24	72	0	72
211	Cashiers	685	1,240	47	29	76	228	0	228
219	Office Machine Operators	448	1,000	42	30	72	216	490	-274
232	Postal Clerks	262	260	6	6	12	36	-	36
237	Receptionists	138	190	7	5	12	36	0	36
201	Secretaries	1,422	2,050	86	65	151	453	2,105	-1,652
222	Shipping & Receiving Clerks	668	650	16	15	31	93	0	93

TABLE 12-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	328	480	20	15	35	105	162	-57
223	Stock Clerks & Storekeepers	443	820	32	24	56	168	1	167
235	Telephone Operators	570	590	26	12	38	114	0	114
203	Typists	395	560	25	12	37	111	469	-358
209	Other Clerical & Kindred Workers	6,355	8,540	247	153	400	1,200	722	478
250	SALES WORKERS	9,358	11,500	358	138	496	1,488	259	1,229
258	Advertising Agents & Salesmen	45	60	1	0	1	3	256	-253
297	Demonstrators	8	10	0	0	0	0	3	3
250	Insurance Agents, Brokers & Underwriters	765	880	22	10	32	96	0	96
251	Real Estate Agents & Brokers	86	110	2	1	3	9	-	9
259	Stock & Bond Salesmen	34	40	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	8.420	10,450	323	125	448	1,344	0	1,344
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	14,857	19,500	546	390	936	2,808	1,182	1,626
	Construction Craftsmen								
861	Brickmasons, Stone, Tile	245	280	14	4	18	54	0	54
860	Carpenters	1,058	1,200	71	34	105	315	44	271
820	Electricians	469	600	17	14	31	93	108	-15
850	Excavating, Grading Oprs.	340	550	14	24	38	114	1	113
840	Painters & Paperhangers	466	600	27	14	41	123	29	94
842	Plasters	66	90	2	0	2	6	-	6
862	Plumbers & Pipefitters	502	700	18	21	39	117	0	117
866	Roofers & Slaters	87	150	3	0	3	9	-	9
399	Structural Metal Workers	64	100	2	1	3	9	0	9
	Foremen, (N.E.C.)	2,360	3,100	77	31	108	324	-	324
	Metalwkrg. Craftsmen	1,218	1,350	3	54	87	261	328	-67
610	Blacksmiths, Forgemen, Hammermen	60	50	1	2	3	9	0	9
805	Boilermakers	96	100	2	1	3	9	0	9
504	Heat Treaters, Annealers	7	10	0	0	0	0	-	0
600	Machinists	819	900	22	18	40	120	253	-133
638	Millwrights	26	40	1	0	1	3	17	-14
804	Sheet Mtl. Wkrs.	119	150	3	1	4	12	55	-43
601	Toolmakers, Diemakers	91	100	2	4	6	18	3	15
	Mechanics & Repairmen	4,134	6,000	150	138	288	864	554	310
827	Air Condt. Heating & Refrigmen.	100	130	3	2	5	15	38	-23
621	Airplane	21	20	0	0	0	0	0	0
620	Motor Vehicles	1,312	1,680	42	50	92	276	324	-48
633	Office Machine Repairmen	72	140	3	8	11	33	0	33
720	Radio & TV Repairmen	188	250	6	7	13	39	95	-56
	Other Mechanics & Repairmen	2,441	3,780	90	52	142	426	97	329
	Printing Trades Craftsmen	604	570	14	2	16	48	19	29
650	Compositors & Typesetters	422	330	8	0	8	24	17	7
974-5	Electro & Stereotypers	15	20	0	0	0	0	0	0
971-2	Engravers & Lithographers	31	50	1	1	2	6	0	6
651	Pressmen & Plate Printers	136	170	4	1	5	15	2	13
	Other Craftsmen & Kindred Workers	3,244	4,210	101	58	159	477	99	378
526	Bakers	417	500	12	5	17	51	0	51
660	Cabinetmakers	126	140	3	2	5	15	34	-19
921	Cranesmen, Derrickmen, Hoistmen	172	240	6	4	10	30	-	30
168	Inspectors	287	410	10	4	14	42	0	42
700	Jewelers, Watchmkrs, Gold & Silversmiths	54	70	1	0	1	3	0	3
821	Linemen & Servicemen	479	580	14	8	22	66	1	65
628	Loom Fixers	99	80	2	0	2	6	0	6
711	Opticians, Lens Grinders & Polishers	57	70	1	0	1	3	0	3
777	Pattern & Model Mkrs., Except Paper	40	50	1	0	1	3	1	2
950	Stationary Engineers	303	350	8	1	9	27	0	27
780	Upholsters	186	260	6	3	9	27	62	-35
	Craftsmen (N.E.C.)	1,024	1,460	78	32	110	330	1	329
	OPERATIVES & KINDRED WORKERS	38,526	44,750	1,342	-402	940	2,820	416	2,404
	Apprentices	79	90	2	3	5	15	-	15
739	Assemblers	894	1,000	30	-75	-45	-135	-	-135
720	Checkers, Examiners & Inspectors, Mfg.	1,228	1,800	57	18	75	225	-	225
906	Deliverymen, Routemen, Cab Drivers	869	1,100	30	11	41	123	-	123
502	Furnacemen, Smeltermen & Pourers	44	40	1	0	1	3	-	3
504	Heaters, Metal	0	10	0	0	0	0	-	0
361	Laundry & Dry Cleaning	476	500	25	6	31	93	0	93
939	Mine Operatives, Mine Laborers (N.E.C.)	3,741	1,600	40	-3	37	111	0	111
316	Meat Cutters, Exc. Slaughter & Packing House	309	370	9	1	10	30	1	29
952	Power Station Operators	87	110	2	0	2	6	0	6
904	Truck & Tractor Drivers	3,203	4,000	100	80	180	540	0	540
819	Welders & Flame Cutters	1,085	1,400	35	28	63	189	95	94
580	Semiskilled Textile Occup.	8,125	8,830	441	-17	424	1,272	209	1,063

TABLE 12-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	40	50	2	0	2	6	0	6
689	Sewers & Stitchers, Mfg.	7,630	8,330	333	-8	325	975	209	766
682	Spinners, Textile	55	55	2	0	2	6	-	6
683	Weavers, Textile	400	395	39	0	39	117	0	117
	Other Operatives (N.E.C.)	19,386	23,900	1,481	-71	1,410	4,230	111	4,119
	SERVICE WORKERS, PRIVATE HOUSEHOLD	1,365	1,500	58	1	59	177	-	177
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	8,811	13,000	910	429	1,339	4,017	288	3,729
	Protective Service Workers	1,269	1,800	598	429	1,027	3,081	0	3,081
373	Firemen, Fire Protection	281	390	13	9	22	66	-	66
375	Policemen , Marshals	454	770	25	33	58	174	0	174
376	Guards, Watchmen	534	640	18	17	35	105	-	105
	Waiters, Cooks & Bartenders	3,181	4,590	500	160	660	1,980	48	1,932
312	Bartenders	811	1,070	32	28	60	180	0	180
314	Cooks	618	900	49	40	89	267	48	219
317	Counter & Fountain Workers	189	350	17	14	31	93	0	93
311	Kitchen Workers (N.E.C.)	499	700	32	26	58	174	0	174
311	Waiters & Waitresses	1,064	1,570	32	23	55	165	0	165
	Other Service Workers	4,361	6,610	277	145	422	1,266	238	1,028
355	Attendants, Hospital & Inst.	507	1,150	69	51	120	360	34	326
330	Barbers	276	400	10	4	14	42	13	29
381	Charwomen & Cleaners	461	600	30	6	36	108	0	108
332	Hairdressers & Cosmetologists	488	820	49	24	73	219	23	196
382	Janitors & Sextons	1,339	1,470	102	14	116	348	0	348
354	Practical Nurses	223	450	22	27	49	147	168	-21
359	Other Service Workers (N.E.C.)	1,067	1,720	56	63	119	357	2	355
	LABORERS, EXCLUDING FARM & MINE	5,242	4,950	123	-138	-15	-45	-	-45
	OCCUPATIONS NOT REPORTED	10,264							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Wilkes-Barre--Hazleton Labor Market Area includes Luzerne County.

TABLE 13

PENNSYLVANIA MANPOWER AND TRAINING DATA

York Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	115,692	150,000	5,601	1,543	7,144	21,432	5,343	16,089
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	9,542	17,000	493	680	1,173	3,519	759	2,760
	Engineers, Technical	1,054	2,150	53	85	138	414	66	348
002	Engineers, Aeronautical	4	6	0	0	0	0	0	0
038	Engineers, Chemical	16	30	0	1	1	3	5	-2
005	Engineers, Civil	169	310	7	11	18	54	0	54
003	Engineers, Electrical	165	350	8	15	23	69	0	69
012	Engineers, Industrial	176	420	9	16	25	75	0	75
007	Engineers, Mechanical	291	600	14	23	37	111	0	111
011	Engineers, Metallurgical	20	50	1	1	2	6	0	6
010	Engineers, Mining	0	0	0	0	0	0	-	0
	Engineers, Sales	128	180	4	6	10	30	16	14
	Other Engineers Technical	85	204	4	7	11	33	45	-12
	Natural Scientists	128	270	6	10	16	48	20	28
040	Agricultural Scientists	6	10	0	0	0	0	19	-19
041	Biological Scientists	6	10	0	0	0	0	-	0
022	Chemists	103	200	3	7	10	30	-	30
024	Geologists & Geophysicists	0	0	0	0	0	0	-	0
020	Mathematicians	0	5	0	0	0	0	-	0
023	Physicists	0	5	0	0	0	0	-	0
	Other Natural Scientists	13	40	0	1	1	3	1	2
	Technicians Excl. Medical & Dental	610	1,270	38	56	94	282	82	200
017	Designers	144	300	8	11	19	57	0	57
726	Electrical & Electronic	86	160	4	8	12	36	82	-46
193	Radio Operators	16	20	0	0	0	0	0	0
018	Surveyors	34	75	1	2	3	9	0	9
	Technicians, Other	330	715	23	32	55	165	0	165
	Medical, Other Health Workers	1,610	3,050	94	121	215	645	63	582
	Chiropractors & Therapists	51	80	1	2	3	9	0	9
072	Dentists	127	170	3	6	9	27	-	27
077	Dietitians & Nutritionists	11	30	1	1	2	6	0	6
075	Nurses, Professional	762	1,600	44	58	102	306	16	290
079	Nurses, Student	105	260	10	10	20	60	0	60
079	Optometrists	23	35	0	1	1	3	-	3
071	Osteopaths	22	85	2	3	5	15	-	15
074	Pharmacists	66	80	1	2	3	9	-	9
070	Physicians & Surgeons	299	355	8	14	22	66	-	66
045	Psychologists	4	10	0	0	0	0	-	0
079	Technicians, Medical & Dental	109	300	29	29	58	174	47	127
073	Veterinarians	31	45	1	1	2	6	-	6
	Teachers	2,662	4,670	162	233	395	1,185	0	1,185
092	Teachers, Elementary	1,391	2,160	81	88	169	507	-	507
091	Teachers, Secondary	945	1,940	65	73	138	414	-	414
099	Teachers, Other Excl. College	167	300	9	11	20	60	0	60
090	Teachers, College	159	270	7	10	17	51	-	51
	Social Scientists	23	50	1	1	2	6	0	6
050	Economists	9	15	0	0	0	0	-	0
020	Statisticians & Actuaries	14	30	0	1	1	3	-	3
059	Other Social Scientists	0	5	0	0	0	0	-	-
	Other Prof., Tech., & Kindred Workers	3,455	5,540	116	179	295	885	528	357
160	Accountants & Auditors	568	950	23	37	60	180	-	180
001	Architects	15	30	0	1	1	3	-	3
017	Draftsmen	594	1,150	28	49	77	231	133	98
110	Lawyers & Judges	155	230	5	8	13	39	-	39
166	Personnel & Labor Relation Wkrs.	119	240	5	8	13	39	-	39
195	Social & Welfare Workers (N.E.C.)	82	190	6	7	13	39	0	39
	Prof., Tech., Kindred Workers	1,922	2,750	71	106	177	531	395	136
421	FARMERS AND FARM WORKERS	6,372	4,500	157	-81	76	228	278	-50
185	MANAGERS, OFFICIALS & PROPRIETORS	8,216	10,800	291	-42	249	747	154	593
200	CLERICAL & KINDRED WORKERS	13,474	20,400	714	489	1,203	3,609	2,823	786
217	Accounting Clerks & Bkprs.	999	1,280	39	31	70	210	661	-451
212	Bank Tellers	227	440	14	9	23	69	0	69
211	Cashiers	538	1,110	41	26	67	201	0	201
219	Office Machine Operators	268	720	29	21	50	150	335	-185
232	Postal Clerks	276	300	8	7	15	45	-	45
237	Receptionists	169	260	9	6	15	45	0	45
201	Secretaries	2,089	3,380	141	107	248	744	669	75
222	Shipping & Receiving Clerks	637	690	17	16	33	99	0	99

TABLE 13-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
202	Stenographers	285	500	20	15	35	105	71	34
223	Stock Clerks & Storekeepers	535	1,200	48	36	84	252	13	139
235	Telephone Operators	444	480	21	9	30	90	0	90
203	Typists	615	980	43	22	65	195	363	-168
209	Other Clerical & Kindred Workers	6,392	9,060	262	162	424	1,272	711	561
250	SALES WORKERS	8,275	11,400	352	136	488	1,464	428	1,036
258	Advertising Agents & Salesmen	46	70	1	0	1	3	423	-420
297	Demonstrators	43	60	1	0	1	3	5	-2
250	Insurance Agents, Brokers & Underwriters	603	800	20	9	29	87	0	87
251	Real Estate Agents & Brokers	139	210	5	2	7	21	-	21
259	Stock & Bond Salesmen	29	40	0	0	0	0	-	0
	Other Sales Workers (N.E.C.)	7,415	10,220	316	122	438	1,314	0	1,314
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	18,103	24,900	697	498	1,195	3,585	471	3,114
	Construction Craftsmen	4,719	5,705	187	119	306	918	85	833
861	Bricklayers, Stone, Tile	650	740	37	11	48	144	3	141
860	Carpenters	1,642	1,750	53	25	78	234	70	164
820	Electricians	602	825	23	19	42	126	7	119
850	Excavating, Grading Oprs.	242	400	10	17	27	81	4	77
840	Painters & Paperhangers	682	750	33	14	47	141	1	140
842	Plasters	104	140	2	0	2	6	-	6
862	Plumbers & Pipefitters	626	830	21	24	45	135	0	135
866	Roofers & Slaters	109	170	4	0	4	12	-	12
999	Structural Metal Workers	62	100	2	0	2	6	0	6
	Foremen, (N.E.C.)	2,878	4,260	106	42	148	444	-	444
	Metalwkrg. Craftsmen	2,224	2,660	65	106	171	513	235	278
610	Blacksmiths, Forgemen, Hammermen	58	50	1	0	1	3	0	3
805	Boilermakers	28	30	0	0	0	0	0	0
504	Heat Treaters, Annealers	56	60	1	1	2	6	-	6
600	Machinists	1,483	1,700	42	86	128	384	156	228
638	Millwrights	76	130	3	2	5	15	0	15
804	Sheet Mtl. Wkrs.	163	240	5	2	7	21	79	-58
601	Toolmakers, Diemakers	360	450	10	19	29	87	0	87
	Mechanics & Repairmen	4,498	7,420	185	169	354	1,062	137	925
827	Air Condt. Heating & Refrigmen.	105	150	3	2	5	15	1	14
621	Airplane	51	60	1	0	1	3	0	3
620	Motor Vehicles	1,601	2,260	56	67	123	369	104	265
633	Office Machine Repairmen	53	110	2	6	8	24	9	15
720	Radio & TV Repairmen	145	240	6	4	10	30	2	28
	Other Mechanics & Repairmen	2,543	4,600	114	87	201	603	21	582
	Printing Trades Craftsmen	830	975	23	4	27	81	11	70
650	Compositors & Typesetters	541	520	13	0	13	39	11	28
974-5	Electro & Stereotypers	21	40	0	0	0	0	0	0
971-2	Engravers & Lithographers	50	83	1	1	2	6	0	6
651	Pressmen & Plate Printers	218	332	7	2	9	27	0	27
	Other Craftsmen & Kindred Workers	2,954	3,880	118	53	171	513	3	510
526	Bakers	357	360	8	3	11	33	0	33
660	Cabinetmakers	199	240	6	3	9	27	0	27
921	Cranesmen, Derrickmen, Hoistmen	191	320	7	4	11	33	-	33
168	Inspectors	91	200	4	1	5	15	0	15
700	Jewelers, Watchmkrs, Gold & Silversmiths	68	100	2	0	2	6	1	5
821	Linemen & Servicemen	385	530	11	7	20	60	0	60
628	Loom Fixers	121	140	3	0	3	9	-	9
711	Opticians, Lens Grinders & Polishers	40	60	1	0	1	3	0	3
777	Pattern & Model Mkrs., Except Paper	96	130	2	1	3	9	2	7
950	Stationary Engineers	238	270	6	1	7	21	0	21
780	Upholsters	167	270	5	3	8	24	0	24
	Craftsmen (N.E.C.)	1,101	1,260	67	26	93	279	0	279
	OPERATIVES & KINDRED WORKERS	33,283	41,000	1,833	-368	1,465	4,395	202	4,193
	Apprentices	216	280	6	11	17	51	-	51
739	Assemblers	1,565	2,100	62	-157	-95	-285	-	-285
720	Checkers, Examiners & Inspectors, Mfg.	1,289	2,320	73	22	95	285	-	285
906	Deliverymen, Routemen, Cab Drivers	1,198	1,470	40	14	54	162	-	162
502	Furnacemen, Smeltermen & Pourers	50	60	1	0	1	3	-	3
504	Heaters, Metal	12	20	0	0	0	0	-	0
361	Laundry & Dry Cleaning	542	600	29	7	36	108	2	106
939	Mine Operatives, Mine Laborers (N.E.C.)	162	150	3	0	3	9	0	9
316	Meat Cutters, Exc. Slaughter & Packing House	291	380	9	1	10	30	2	28
952	Power Station Operators	24	40	0	0	0	0	0	0
904	Truck & Tractor Drivers	3,286	4,700	117	93	210	630	0	630
819	Welders & Flame Cutters	1,163	1,860	46	36	82	246	16	230
580	Semiskilled Textile Occup.	4,573	4,955	247	-9	238	714	0	714

TABLE 13-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
685	Knitters, Loopers, Toppers	160	170	6	0	6	18	0	18
689	Sewers & Stitchers, Mfg.	3,856	4,200	360	-1	359	1,077	0	1,077
682	Spinners, Textile	57	65	2	0	2	6	-	6
683	Weavers, Textile	500	520	28	0	28	84	0	84
	Other Operatives (N.E.C.)	18,912	22,065	1,367	-65	1,302	3,906	182	3,724
	SERVICE WORKERS, PRIVATE HOUSEHOLD	1,888	2,500	96	2	98	294	-	294
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD	7,445	11,800	826	388	1,214	3,642	228	3,414
	Protective Service Workers	833	1,600	65	51	116	348	0	348
373	Firemen, Fire Protection	108	200	6	4	10	30	-	30
375	Policemen , Marshals	264	700	22	30	52	156	0	156
376	Guards, Watchmen	461	700	20	18	38	114	-	114
	Waiters, Cooks & Bartenders	3,280	5,010	549	174	723	2,169	1	2,168
312	Bartenders	279	400	11	10	21	63	0	63
314	Cooks	1,007	1,500	82	66	148	444	0	444
317	Counter & Fountain Workers	246	470	23	18	41	123	1	122
311	Kitchen Workers (N.E.C.)	365	540	13	10	23	69	0	69
311	Waiters & Waitresses	1,383	2,100	84	68	152	456	0	456
	Other Service Workers	3,332	5,190	275	143	418	1,254	227	1,027
355	Attendants, Hospital & Inst.	217	550	32	24	56	168	75	93
330	Barbers	176	290	6	2	8	24	7	17
381	Charwomen & Cleaners	242	420	20	3	23	69	0	69
332	Hairdressers & Cosmetologists	610	1,030	64	32	96	288	27	261
382	Janitors & Sextons	973	1,140	79	11	90	270	0	270
354	Practical Nurses	336	750	37	44	81	243	118	125
359	Other Service Workers (N.E.C.)	778	960	31	34	65	195	0	195
	LABORERS, EXCLUDING FARM & MINE	5,640	5,700	142	-159	-17	-51	-	-51
	OCCUPATIONS NOT REPORTED	3,454							

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The York Labor Market Area includes the following counties: Adams and York.

TABLE 14

PENNSYLVANIA MANPOWER AND TRAINING DATA

Pottsville Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	60,654	56,500	1,790	367	2,157	6,471	4,054	2,417
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	4,354	5,300	153	212	365	1,095	194	901
160	Accountants & Auditors	188	185	4	7	11	33	-	33
001	Architects	4	3	0	0	0	0	0	0
022	Chemists & Natural Scientists	65	90	2	3	5	15	8	7
017	Designers & Draftsmen	107	120	3	4	7	21	80	-59
005	Engineers: Civil	55	65	1	2	3	9	0	9
003	Electrical	31	40	1	1	2	6	0	6
012	Industrial	48	70	1	2	3	9	0	9
007	Mechanical	25	30	0	1	1	3	0	3
019	Other Engineers, Technical	109	160	4	6	10	30	0	30
110	Lawyers & Judges	104	95	2	3	5	15	-	15
166	Personnel & Labor Relations Workers	25	30	0	1	1	3	-	3
195	Social & Welfare Workers	45	65	2	2	4	12	0	12
	Social Scientists	4	5	0	0	0	0	0	0
018	Surveyors	34	40	1	1	2	6	0	6
079	Technicians: Medical & Dental	99	195	6	7	13	39	10	29
726	Electrical & Electronic	8	10	0	0	0	0	46	-46
799	Other Eng. & Pys. Sc. (Incl. Other, N.E.C.)	131	205	6	9	15	45	0	45
	Other Professional, Technical & Kindred Wks.	3,272	3,892	101	155	256	768	44	724
185	MANAGERS, OFFICIALS & PROP. INCL. FARM	4,370	3,575	96	-14	82	246	177	69
200	CLERICAL AND KINDRED WORKERS	5,605	5,910	206	141	347	1,041	2,685	-1,644
217	Bookkeepers	524	480	14	12	26	78	653	-575
211	Cashiers	279	385	14	9	23	69	0	69
219	Office Machine Operators	25	40	1	1	2	6	126	-120
201	Secretaries	723	795	33	25	58	174	1,053	-879
222	Shipping & Receiving Clerks	229	170	4	4	8	24	199	-175
202	Stenographers	170	190	7	6	13	39	44	-5
223	Stock Clerks & Storekeepers	124	170	6	5	11	33	5	28
235	Telephone Operators	233	185	8	3	11	33	0	33
203	Typists	204	220	9	5	14	42	222	-180
209	Other Clerical & Kindred Workers	3,094	3,275	94	58	152	456	383	73
250	SALES WORKERS	3,965	3,790	117	45	162	486	68	418
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	7,902	7,430	200	141	341	1,023	347	676
610	Blacksmiths, Forgemen & Hammermen	23	15	0	0	0	0	0	0
805	Boilermakers	16	10	0	0	0	0	0	0
660	Cabinetmakers & Patternmakers	46	40	1	0	1	3	0	3
860	Carpenters	616	475	23	7	30	90	86	4
921	Cranemen, Derrickmen & Hoistmen	178	185	4	3	7	21	-	21
821	Electricians	272	240	6	5	11	33	31	2
	Foremen (N.E.C.)	1,118	1,125	28	11	39	117	0	117
600	Machinists & Job Setters	369	270	6	14	20	60	62	-2
	Mechanics & Repairmen	2,341	2,700	67	62	129	387	133	254
638	Millwrights	24	20	0	0	0	0	0	0
862	Plumbers & Pipe Fitters	257	240	6	7	13	39	10	29
650	Printing Craftsmen	177	130	3	0	3	9	0	9
950	Stationary Engineers	197	150	3	0	3	9	0	9
804	Tinsmiths, Coppersmiths & Sheet Metal Wks.	24	20	0	0	0	0	12	-12
601	Toolmakers, Die Makers & Setters	95	70	1	3	4	12	0	12
	Other Craftsmen & Kindred Workers	2,149	1,740	41	24	65	195	13	182
	OPERATIVES AND KINDRED WORKERS	23,869	22,525	675	-202	473	1,419	442	977
	Apprentices	57	50	1	2	3	9	-	9
739	Assemblers	342	290	8	-21	-13	-39	-	-39
720	Checkers, Examiners & Inspectors	236	265	8	2	10	30	-	30
502	Furnacemen, Smeltermen & Heaters	59	40	1	0	1	3	-	3
689	Sewers & Stitchers, Manufacturing	5,074	4,700	470	4	474	1,422	110	1,312
904	Truck Drivers & Deliverymen	2,833	2,720	68	54	122	366	-	366
812	Welders & Flame-Cutters	547	545	13	10	23	69	0	69
	Other Operative & Kindred Workers	14,721	13,915	862	-41	821	2,463	302	2,161
	SERVICE WORKERS, INCL. PRIVATE HOUSEHOLD	4,741	5,350	278	117	395	1,185	141	1,044
381	Charwomen, Janitors & Porters	716	720	36	7	43	129	0	129
376	Guards, Watchmen	230	210	6	5	11	33	0	33
359	Other Service Workers	3,795	4,420	185	97	282	846	141	827
	LABORERS, INCLUDING FARM	3,686	2,620	65	-73	-8	-24	-	-24
	OCCUPATIONS NOT REPORTED	2,162							

(See footnotes page 73)

TABLE 14-Continued

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to Their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Pottsville Labor Market Area includes Schuylkill County.

TABLE 15

PENNSYLVANIA MANPOWER AND TRAINING DATA

Uniontown-Connellsville Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	45,903	41,000	1,312	363	1,675	5,025	4,350	675
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	3,993	4,570	132	182	314	942	356	586
160	Accountants & Auditors	149	140	3	5	8	24	-	24
001	Architects	16	15	0	0	0	0	0	0
022	Chemists & Natural Scientists	34	45	1	1	2	6	6	0
017	Designers & Draftsmen	109	120	3	4	7	21	194	-173
005	Engineers: Civil	72	80	2	3	5	15	0	15
003	Electrical	32	40	1	1	2	6	0	6
012	Industrial	55	75	1	3	4	12	0	12
007	Mechanical	35	40	1	1	2	6	0	6
-19	Other Engineers, Technical	92	130	3	5	8	24	17	7
110	Lawyers & Judges	56	50	1	2	3	9	-	9
166	Personnel & Labor Relations Workers	21	25	0	1	1	3	-	3
195	Social & Welfare Workers	31	45	1	2	3	9	0	9
	Social Scientists	0	5	0	0	0	0	0	0
018	Surveyors	42	45	1	1	2	6	0	6
079	Technicians: Medical & Dental	53	100	3	4	7	21	46	-25
726	Electrical & Electronic	8	10	0	0	0	0	75	-75
799	Other Eng. & Phys. Sc. (Incl. Other, N.E.C.)	87	130	4	5	9	27	-	27
	Other Professional, Technical & Kindred Wks.	3,101	3,475	90	139	229	687	18	669
185	MANAGERS, OFFICIALS & PROP. INCL. FARM	3,774	3,000	81	-12	69	207	167	40
200	CLERICAL AND KINDRED WORKERS	4,477	4,400	154	105	259	777	2,370	-1,593
217	Bookkeepers	498	440	13	11	24	72	648	-576
211	Cashiers	351	465	17	11	28	84	0	84
219	Office Machine Operators	40	65	2	1	3	9	240	-231
201	Secretaries	592	625	26	20	46	138	848	-710
222	Shipping & Receiving Clerks	76	55	1	1	2	6	0	6
202	Stenographers	53	60	2	1	3	9	145	-136
223	Stock Clerks & Storekeepers	169	230	9	6	15	45	3	42
235	Telephone Operators	157	120	5	2	7	21	1	20
203	Typists	106	130	5	2	7	21	182	-161
209	Other Clerical & Kindred Workers	2,435	2,210	64	39	103	309	303	6
250	SALES WORKERS	3,605	3,230	100	38	138	414	124	290
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	6,972	6,620	178	125	303	909	368	541
610	Blacksmiths, Forgemen & Hammermen	23	10	0	0	0	0	0	0
805	Boilermakers	4	3	0	0	0	0	0	0
660	Cabinetmakers & Patternmakers	40	35	1	0	1	3	0	3
860	Carpenters	437	425	21	6	27	81	29	52
921	Cranemen, Derrickmen & Hoistmen	269	270	6	4	10	30	-	30
821	Electricians	246	220	6	5	11	33	63	-30
	Foremen (N.E.C.)	834	820	20	8	28	84	-	84
600	Machinists & Job Setters	365	255	6	13	19	57	53	4
	Mechanics & Repairmen	2,178	2,425	60	55	115	345	183	162
638	Millwrights	56	50	1	1	2	6	0	6
862	Plumbers & Pipe Fitters	146	130	3	3	6	18	0	0
650	Printing Craftsmen	138	100	2	0	2	6	0	6
950	Stationary Engineers	155	115	2	0	2	6	0	6
804	Tinsmiths, Coppersmiths & Sheet Metal Wks.	28	25	0	0	0	0	0	0
601	Toolmakers, Die Makers & Setters	66	50	1	2	3	9	15	-6
	Other Craftsmen & Kindred Workers	1,987	1,687	40	23	63	189	25	164
	OPERATIVES AND KINDRED WORKERS	12,631	11,460	343	-103	240	720	746	-26
	Apprentices	69	60	1	2	3	9	-	9
739	Assemblers	114	145	4	-10	-6	-18	-	-18
720	Checkers, Examiners & Inspectors	533	580	18	5	23	69	-	69
502	Furnacemen, Smeltermen & Heaters	160	110	2	-1	1	3	-	3
689	Sewers & Stitchers, Manufacturing	566	440	44	0	44	132	453	-321
904	Truck Drivers & Deliverymen	1,812	1,725	43	34	77	221	0	221
812	Welders & Flame-Cutters	419	430	10	8	18	54	281	-227
	Other Operative & Kindred Workers	8,958	7,970	494	-23	471	1,413	0	1,413
	SERVICE WORKERS, INCL. PRIVATE HOUSEHOLD	4,501	4,890	254	107	361	1,083	219	864
381	Charwomen, Janitors & Porters	760	740	37	7	44	132	0	132
376	Guards, Watchmen	175	155	4	4	8	24	-	24
359	Other Service Workers	3,566	3,995	167	87	254	762	219	543
	LABORERS, INCLUDING FARM	4,164	2,830	70	-79	-9	-27	-	-27
	OCCUPATIONS NOT REPORTED	1,786							

(See footnotes page 75)

TABLE 15-Continued

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections And a Guide to Their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Uniontown-Connellsville Labor Market Area includes Fayette County.

TABLE 16

PENNSYLVANIA MANPOWER AND TRAINING DATA

Williamsport Labor Market Area
July 1, 1966 to June 30, 1969

DOT CODE	OCCUPATIONAL CLASSIFICATION	CENSUS 1960 (1)	PROJECTED EMPLOYMENT 1975 (2)	ANNUAL WITH-DRAWAL (3)	ANNUAL GROWTH (4)	ANNUAL DEMAND (5)	3 YEAR DEMAND (6)	3 YEAR SUPPLY (7)	UNMET DEMAND (8)
	GRAND TOTAL	40,593	50,000	1,612	518	2,130	6,390	3,817	2,573
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	3,752	6,000	174	240	414	1,242	833	409
160	Accountants & Auditors	155	210	5	8	13	39	-	39
001	Architects	16	20	0	0	0	0	29	-29
022	Chemists & Natural Scientists	41	80	2	3	5	15	34	-19
017	Designers & Draftsmen	189	300	9	12	21	63	198	-135
005	Engineers: Civil	68	110	2	4	6	18	33	-15
003	Electrical	52	90	2	3	5	15	0	15
012	Industrial	60	120	3	4	7	21	0	21
007	Mechanical	64	100	2	4	6	18	0	18
019	Other Engineers, Technical	117	235	5	9	14	42	68	-26
110	Lawyers & Judges	82	105	2	4	6	18	-	18
166	Personnel & Labor Relations Workers	50	85	2	3	5	15	-	15
195	Social & Welfare Workers	16	30	1	1	2	6	0	6
	Social Scientists	4	7	0	0	0	0	0	0
018	Surveyors	17	30	0	1	1	3	0	3
079	Technicians: Medical & Dental	77	210	6	8	14	42	45	-3
726	Electrical & Electronic	20	40	1	2	3	9	202	-193
799	Other Eng. & Pys. Sc. (Incl. Other, N.E.C.)	62	130	4	5	9	27	-	27
	Other Professional, Technical & Kindred Wks.	2,662	4,098	106	163	269	807	224	583
185	MANAGERS, OFFICIALS & PROP. INCL. FARM	3,598	4,030	108	-16	92	276	122	154
200	CLERICAL AND KINDRED WORKERS	5,254	7,210	252	173	425	1,275	1,695	-420
217	Bookkeepers	387	485	15	12	27	81	367	-286
211	Cashiers	211	400	15	9	24	72	0	72
219	Office Machine Operators	47	110	4	3	7	21	84	-63
201	Secretaries	831	1,255	52	40	92	276	415	-139
222	Shipping & Receiving Clerks	247	250	6	6	12	36	0	36
202	Stenographers	209	320	13	10	23	69	64	5
223	Stock Clerks & Storekeepers	215	415	16	12	28	84	5	79
235	Telephone Operators	221	240	10	5	15	45	0	45
203	Typists	203	300	13	6	19	57	231	-174
209	Other Clerical & Kindred Workers	2,683	3,435	99	61	160	480	529	-49
250	SALES WORKERS	2,806	3,580	110	42	152	456	6	450
	CRAFTSMEN, FOREMEN & KINDRED WORKERS	5,989	7,500	202	142	344	1,032	911	121
610	Blacksmiths, Forgemen & Hammermen	9	7	0	0	0	0	0	0
805	Boilermakers	28	28	0	0	0	0	0	0
660	Cabinetmakers & Patternmakers	119	148	4	2	6	18	17	1
860	Carpenters	345	365	18	5	23	69	71	2
921	Cranemen, Derrickmen & Hoistmen	68	100	2	1	3	9	-	9
821	Electricians	189	230	6	5	11	33	48	15
	Foremen (N.E.C.)	978	1,350	33	13	46	138	-	138
600	Machinists & Job Setters	460	460	11	24	35	105	179	74
	Mechanics & Repairmen	1,561	2,475	61	56	117	351	335	16
638	Millwrights	15	20	0	0	0	0	0	0
862	Plumbers & Pipe Fitters	161	210	5	6	11	33	14	19
650	Printing Craftsmen	190	195	4	0	4	12	0	12
950	Stationary Engineers	136	145	3	0	3	9	0	9
804	Tinsmiths, Coppersmiths & Sheet Metal Wks.	147	180	4	1	5	15	28	13
601	Toolmakers, Die Makers & Setters	123	122	3	5	8	24	0	24
	Other Craftsmen & Kindred Workers	1,460	1,465	35	20	55	165	219	-54
	OPERATIVES AND KINDRED WORKERS	10,744	13,000	390	-117	273	819	66	753
	Apprentices	23	30	0	1	1	3	-	3
739	Assemblers	572	670	20	-50	-30	-90	-	-90
720	Checkers, Examiners & Inspectors	350	540	17	5	22	66	-	66
502	Furnacemen, Smeltermen & Heaters	8	8	0	0	0	0	-	0
689	Sewers & Stitchers, Manufacturing	1,216	1,350	135	1	136	408	0	408
904	Truck Drivers & Deliverymen	1,212	1,590	39	31	70	210	0	210
812	Welders & Flame-Cutters	213	290	7	5	12	36	0	36
	Other Operative & Kindred Workers	7,150	8,522	528	-25	503	1,509	66	1,443
	SERVICE WORKERS, INCL. PRIVATE HOUSEHOLD	3,842	5,940	308	130	438	1,314	184	1,130
381	Charwomen, Janitors & Porters	562	780	39	7	46	138	0	138
376	Guards, Watchmen	192	245	7	6	13	39	-	39
359	Other Service Workers	3,088	4,915	206	108	314	942	184	758
	LABORERS, INCLUDING FARM	2,839	2,740	68	-76	-8	-24	-	-24
	OCCUPATIONS NOT REPORTED	1,769							

TABLE 16-Continued

N.E.C. - Abbreviation for Not Elsewhere Classified.

Columns (1) and (2) derived from 1960 Census and 1970, 1975 Projected Total Employment by Occupation by Residence, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, January, 1969).

Columns (3) and (4) derived using withdrawal and growth rates found in Tomorrow's Manpower Needs: National Manpower Projections and a Guide to Their Use as a Tool in Developing State and Area Manpower Projections, Bulletin No. 1606, (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics; February, 1969).

Column (7) includes graduates from educational institutions offering preparatory programs for training students who will enter full-time skilled employment upon completion of their occupational program. Graduates from the following educational institutions were included in the supply statistics: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges. An occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. Hence, the supply column does not include graduates receiving baccalaureate, graduate and professional degrees.

The Williamsport Labor Market Area includes Lycoming County.

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CHAPTER FIVE

SELECTED STATISTICS ON THE SUPPLY OF GRADUATES

In Chapter Two, it has been emphasized that a complete analysis of the supply of occupationally trained graduates from preparatory programs involves the identification of all principal training agencies and their output of graduates by occupational areas. Hence, this chapter contains statistics relating to the supply of vocational education graduates in the Commonwealth. These statistics provide an overview of the various programs and their output of graduates during the three-year period ending June 30, 1969. This is followed by a brief discussion of the types of additional supply information that the Bureau of Vocational, Technical and Continuing Education has on file and available for vocational education program planners. The last part of the chapter contains a few concluding statements relating to the general nature of the publication and the improvement of future labor market information.

SELECTED SUPPLY STATISTICS

Each supply-demand posture presented in the two previous chapters contains in Column Seven the three-year supply of graduates trained within that geographic area. Further, the entries in Column Seven list only the total supply of graduates for each occupation. Based on this information, the planner cannot obtain from the supply-demand postures answers to questions such as those listed below.

- For each occupational category in a supply-demand posture, what type of training agency supplied graduates? How many did each agency provide?

- For any supply-demand posture containing more than one county (e.g., statewide posture), what was the relative contribution of each county?

- Since a supply-demand posture contains data on graduates for a three-year period, what was the output of graduates for each year? What are the trends in the supply of graduates?

The sample questions formulated above should indicate that a more thorough examination of the supply of graduates is necessary to fully understand the relationships among the various institutions who offer vocational education programs. The selected statistics presented in this chapter are designed to provide some knowledge about these relationships.

Table 17 shows the number and per cent of graduates from occupational education institutions in each county. The table allows the program planner to determine very quickly the number of occupational education graduates in his county. In addition, he can see what type of institutions, in the county, are providing the training. For state level

planning Table 17 indicates what counties are providing the bulk of the occupational training. The state level planner can readily determine what types of training agencies exist in each county.

Table 18 shows the number and per cent of graduates trained in each county for every year included in the study. For example, the table indicates that during the school year 1966-67, 17.8 per cent of the vocational education graduates in the state were trained in Allegheny County.

Table 19 allows the program planner to determine the number and percentage of graduates trained in each labor market area. He can also see what institutions, in the labor market, are providing the training. Table 20 shows the distribution of graduates in each labor market by year. These entries allow the planner to determine trends in the supply of graduates.

Tables 21 through 23 can be read in conjunction with the supply-demand posture containing the statewide totals (See Table 1). These tables present a profile of the data found in Column Seven. Using Table 21, the planner can see what institutions in the Commonwealth are providing the vocational education training in each of the 142 occupational categories. For example, in Column Seven in Table 1, the total number of accounting clerks and bookkeepers trained in Pennsylvania for this three-year period is 26,261. Table 21 then shows the type of training institutions and the number of accounting clerks and bookkeepers they trained. These entries are shown below.

Public Secondary Schools	22,341
Community Colleges	223
Private Trade and Technical Schools	101
Private Business Schools	2,900
State Trade and Technical Schools	57
Manpower Development Training Programs	114
State Retraining Programs	---
Two-Year Programs in Four-Year Schools	103
Private Junior Colleges	422
Total	26,261

Tables 22 and 23 serve the same function as Table 21 and can be interpreted in the same manner. Table 22 contains the subtotals for the various occupational categories. Table 23 shows the totals for the ten different major categories.

The selected statistics presented in this section should provide the reader some knowledge about the types of training institutions and their relative contributions to the manpower supply within the Commonwealth. It should be obvious that no one type of institution could independently satisfy the labor market demands in the Commonwealth. Providing occupationally trained graduates must be a cooperative effort on the part of all institutions.

Statistics such as those found in Table 21 through 23, which are designed to support the data in Column Seven of Table 1, are available for each of the labor market areas. Other supply statistics designed to aid vocational education program planners to determine the supply system within specific geographic regions are also available in the Division of Planning of the Bureau of Vocational, Technical and Continuing Education (BVTCE). Since these statistics are primarily for use by planners in specific regions and since the size of the publication limits the number of tables that can be published, these additional statistics do not appear here. However, the next section of this chapter describes the type of supply statistics that are available.

(The narrative continues on page 93).

TABLE 17

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF VOCATIONAL EDUCATION GRADUATES BY COUNTY AND TYPE OF TRAINING AGENCY

UNTY	INSTITUTION																		TOTAL	
	PUBLIC SECONDARY SCHOOLS		COMMUNITY COLLEGE		PRIVATE TRADE & TECH SCHOOLS		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH. SCHOOLS		MDTA		STATE RETRAINING ACT		2 YR. PROGS. IN 4 YR. COL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
ams	761	0.5									55	0.4	79	0.8					895	0.4
legheny	23,097	14.8	328	8.2	6,470	35.4	7,594	27.3			3,194	25.6			1,183	20.5	1,587	25.8	43,453	18.0
mstrong	1,633	1.0									1								1,634	0.7
aver	4,258	2.7	206	5.2			170	0.6			288	2.3			74	1.3	340	5.5	5,336	2.2
dford	737	0.5									99	0.8							836	0.3
rks	4,031	2.6			248	1.4	851	3.1			53	0.4	265	2.8	159	2.8			5,607	2.3
air	2,515	1.6			51	0.3	349	1.3			211	1.7			254	4.4			3,380	1.4
adford	680	0.4									33	0.3			1				714	0.3
cks	5,668	3.6	414	10.4							20	0.2	179	1.9			16	0.3	6,297	2.6
tler	2,103	1.3	105	2.6							206	1.6	18	0.2					2,432	1.0
mbria	3,214	2.1			593	3.2	621	2.2			549	4.4	129	1.4			589	9.6	5,695	2.4
meron																				
rbon	868	0.6									73	0.6							941	0.4
ntre	1,655	1.1									62	0.5			101	1.8			1,818	0.8
ester	3,254	2.1									234	1.9	57	0.6					3,545	1.5
arion	781	0.5									3								784	0.3
earfield	1,639	1.0					214	0.8			16	0.1			70	1.2			1,939	0.8
inton	732	0.5																	732	0.3
lumbia	885	0.6									28	0.2							913	0.4
awford	1,171	0.7									15	0.1							1,186	0.5
mberland	1,804	1.2			4		12				18	0.1							1,838	0.8
uphin	3,000	1.9	215	5.4	310	1.7	1,542	5.5	375	30.3	371	3.0	41	0.4	35	0.6	36	0.6	5,925	2.5
laware	5,323	3.4	9	0.2	984	5.4	381	1.4	203	16.4	600	4.8	30	0.3	20	0.3	444	7.2	7,994	3.3
k	449	0.3									4								453	0.2
ie	5,245	3.4			150	0.8	375	1.3			386	3.1	40	0.4	94	1.6			6,290	2.6
yette	3,066	2.0			250	1.4	314	1.1			130	1.0	484	5.2	106	1.8			4,350	1.8
rest	6																		6	
anklin	1,586	1.0					36	0.1	126	10.2	9	0.1			119	2.1	127	2.1	2,003	0.8
lton	331	0.2																	331	0.1
reene	749	0.5																	749	0.3
ntingdon	733	0.5									5								738	0.3
diana	1,329	0.8			194	1.1					9	0.1							1,532	0.6
fferson	484	0.3									8	0.1	73	0.8					565	0.2
uniata	292	0.2																	292	0.1
ckawanna	2,533	1.6			97	0.5	343	1.2			441	3.5	12	0.1	238	4.1	438	7.1	4,102	1.7
ncaster	3,540	2.3			88	0.5	104	0.4	359	29.0	35	0.3	1,115	11.9	17	0.3	7	0.1	5,265	2.2
wrence	1,560	1.0			266	1.5	360	1.3			165	1.3			3	0.1			2,354	1.0
banon	1,316	0.8									4								1,320	0.5
high	3,431	2.2	295	7.4	293	1.6	1,486	5.3			230	1.8	222	2.4	112	1.9			6,069	2.5
zerne	5,086	3.3	370	9.3			1,984	7.1			873	7.0	209	2.2	381	6.6			8,903	3.7

TABLE 17-CONTINUED

COUNTY	INSTITUTION																		TOTAL	
	PUBLIC SECONDARY SCHOOLS		COMMUNITY COLLEGE		PRIVATE TRADE & TECH SCHOOLS		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH. SCHOOLS		MDTA		STATE RETRAINING ACT		2 YR. PROGS. IN 4 YR. COL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Lycoming	2,166	1.4	1,194	29.9			219	0.8			16	0.1	222	2.4					3,817	1.6
McKean	932	0.6									2								934	0.4
Mercer	1,290	0.8					38	0.1			31	0.2			57	1.0			1,416	0.6
Mifflin	667	0.4									40	0.3							707	0.3
Monroe	438	0.3																		0.2
Montgomery	5,710	3.6	232	5.8	9		931	3.3			22	0.2			222	3.9	227	3.7	7,353	3.0
Montour	178	0.1																	178	0.1
Northampton	3,309	2.1	17	1.8			317	1.1			101	0.8	123	1.3					3,921	1.6
Northumberland	1,773	1.1									161	1.3	125	1.3					2,059	0.9
Perry	526	0.3																	526	0.2
Philadelphia	17,742	11.3	553	13.9	7,740	42.3	7,414	26.6	175	14.1	2,617	20.9	4,978	53.3	1,994	34.6	1,682	27.4	44,895	18.6
Pike	27																		27	
Potter	345	0.2			81	0.4													426	0.2
Schuylkill	2,649	1.7					578	2.1			102	0.8	629	6.7	96	1.7			4,054	1.7
Snyder	396	0.3																	396	0.2
Somerset	1,504	1.0									3								1,507	0.6
Sullivan	47																		47	0.0
Susquehanna	488	0.3			115	0.6													603	0.2
Tioga	754	0.5																	754	0.3
Union	344	0.2																	344	0.1
Venango	801	0.5					17	0.1			20	0.2							838	0.3
Warren	835	0.5									5	0.0							840	0.3
Washington	2,574	1.6			65	0.4	282	1.0			294	2.4	240	2.6					3,455	1.4
Wayne	341	0.2					78	0.3			13	0.1							432	0.2
Westmoreland	5,887	3.8			60	0.3	491	1.8			304	2.4			131	2.3			6,873	2.8
Wyoming	519	0.3									1	0.0	75	0.8			484	7.9	1,079	0.4
York	2,682	1.7			219	1.2	763	2.7			330	2.6			290	5.0	164	2.7	4,448	1.8
TOTAL	156,469	64.8	3,992	1.7	18,287	11.5	27,864	11.5	1,238	0.5	12,500	5.2	9,345	3.9	5,757	2.4	6.141	2.5	241,593	100.0

TABLE 18

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF VOCATIONAL EDUCATION GRADUATES BY COUNTY AND YEAR OF GRADUATION

COUNTY	YEAR July 1, 1966 June 30, 1967		YEAR July 1, 1967 June 30, 1968		YEAR July 1, 1968 June 30, 1969		TOTAL	
	Number	%	Number	%	Number	%	Number	%
Adams	310	0.4	229	0.3	356	0.4	895	0.4
Allegheny	13348	17.8	14275	18.1	15830	18.1	43453	18.0
Armstrong	539	0.7	443	0.6	652	0.7	1634	0.7
Beaver	1760	2.3	1694	2.1	1882	2.1	5336	2.2
Bedford	315	0.4	259	0.3	262	0.3	836	0.3
Berks	1693	2.3	1742	2.2	2172	2.5	5607	2.3
Blair	1017	1.4	1072	1.4	1291	1.5	3380	1.4
Bradford	257	0.3	260	0.3	197	0.2	714	0.3
Bucks	2039	2.7	2175	2.8	2083	2.4	6297	2.6
Butler	878	1.2	843	1.1	711	0.8	2432	1.0
Cambria	1537	2.0	1966	2.5	2192	2.5	5695	2.4
Carbon	258	0.3	326	0.4	357	0.4	941	0.4
Centre	509	0.7	663	0.8	646	0.7	1818	0.8
Chester	1197	1.6	1039	1.3	1309	1.5	3545	1.5
Clarion	261	0.3	247	0.3	276	0.3	784	0.3
Clearfield	658	0.9	642	0.8	639	0.7	1939	0.8
Clinton	288	0.4	289	0.4	155	0.2	732	0.3
Columbia	306	0.4	322	0.4	285	0.3	913	0.4
Crawford	363	0.5	336	0.4	487	0.6	1186	0.5
Cumberland	609	0.8	609	0.8	620	0.7	1838	0.8
Dauphin	1761	2.3	1942	2.5	2222	2.5	5925	2.5
Delaware	2330	3.1	2546	3.2	3118	3.6	7994	3.3
Elk	147	0.2	152	0.2	154	0.2	453	0.2
Erie	2268	3.0	2189	2.8	1833	2.1	6290	2.6
Fayette	1406	1.9	1225	1.6	1719	2.0	4350	1.8
Forest	6						6	
Franklin	608	0.8	717	0.9	678	0.8	2003	0.8
Fulton	122	0.2	126	0.2	83	0.1	331	0.1
Greene	262	0.3	270	0.3	217	0.2	749	0.3
Huntington	246	0.3	254	0.3	238	0.3	738	0.3
Indiana	579	0.8	447	0.6	506	0.6	1532	0.6
Jefferson	161	0.2	157	0.2	247	0.3	565	0.2
Juniata	94	0.1	88	0.1	110	0.1	292	0.1
Lackawanna	1455	1.9	1211	1.5	1436	1.6	4102	1.7
Lancaster	1895	2.5	1832	2.3	1538	1.8	5265	2.2
Lawrence	772	1.0	818	1.0	764	0.9	2354	1.0
Lebanon	376	0.5	401	0.5	543	0.6	1320	0.5
Lehigh	1445	1.9	2195	2.8	2429	2.8	6069	2.5
Luzerne	2639	3.5	2903	3.7	3336	3.8	8878	3.7
Lycoming	1535	2.0	1067	1.4	1215	1.4	3817	1.6
McKean	315	0.4	347	0.4	272	0.3	934	0.4
Mercer	472	0.6	510	0.6	434	0.5	1416	0.6

TABLE 18-Continued

COUNTY	YEAR July 1, 1966 June 30, 1967			YEAR July 1, 1967 June 30, 1968			YEAR July 1, 1968 June 30, 1969			TOTAL	
	Number	%		Number	%		Number	%		Number	%
Mifflin	179	0.2		172	0.2		356	0.4		707	0.3
Monroe	135	0.2		134	0.2		179	0.2		448	0.2
Montgomery	1939	2.6		2585	3.3		2829	3.2		7353	3.0
Montour	52	0.1		46	0.1		80	0.1		178	0.1
Northampton	1172	1.6		1213	1.5		1536	0.8		3921	1.6
Northumberland	629	0.8		740	0.9		690	0.8		2059	0.9
Perry	150	0.2		156	0.2		220	0.3		526	0.2
Philadelphia	13310	17.7		14794	18.7		16791	19.2		44895	18.6
Pike	7			7			13			27	
Potter	160	0.2		126	0.2		140	0.2		426	0.2
Schuylkill	1354	1.8		1447	1.8		1253	1.4		4054	1.7
Snyder	120	0.2		123	0.2		153	0.2		396	0.2
Somerset	434	0.6		490	0.6		583	0.7		1507	0.6
Sullivan	12			0			35			47	
Susquehanna	157	0.2		206	0.1		240	0.1		603	0.2
Tioga	236	0.3		238	0.3		280	0.3		754	0.3
Union	108	0.1		121	0.2		115	0.1		344	0.1
Venango	229	0.3		247	0.3		362	0.4		838	0.3
Warren	260	0.3		269	0.3		311	0.4		840	0.3
Washington	1280	0.7		1027	1.3		1148	0.3		3455	1.4
Wayne	148	0.2		130	0.2		154	0.2		432	0.2
Westmoreland	2447	3.3		2142	2.7		2284	2.6		6873	2.8
Wyoming	63	0.1		145	0.2		871	1.0		1079	0.4
York	1449	1.9		1531	1.9		1468	1.7		4448	1.8
TOTAL	75066	100.0		78917	100.0		87585	100.0		241568	100.0

TABLE 19

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF VOCATIONAL EDUCATION GRADUATES BY LMA AND TRAINING AGENCY

LMA	TRAINING AGENCY																		TOTAL	
	PUBLIC SEC. SCH.		COMMUNITY COLLEGE		PRIVATE TRADE & TECH. SCHS.		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH SCHOOLS		MDTA		STATE RETRAIN. ACT		2-YR. PROGRS. IN 4-YR. COLL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Philadelphia	37697	24.1	1208	30.3	8733	47.8	8726	31.3	378	30.5	3493	27.9	5244	56.1	2236	38.8	2369	38.6	70084	29.0
Pittsburgh	35816	22.9	534	13.4	6595	36.1	8537	30.6			4080	32.6	240	2.6	1388	24.1	1927	31.4	59117	24.5
Altoona	2515	1.6			51	0.3	349	1.3			211	1.7			254	4.4			3380	1.4
Johnstown	4718	3.0			593	3.2	621	2.2			552	4.4	129	1.4			589	9.6	7202	3.0
Uniontown	3066	2.0			250	1.4	314	1.1			130	1.0	484	5.2	106	1.8			4350	1.8
Erie	5245	3.4			150	0.8	375	1.3			386	3.1	40	0.4	94	1.6			6290	2.6
Harrisburg	5330	3.4	215	5.4	314	1.7	1554	5.6	375	30.3	389	3.1	40	0.4	35	0.6	36	0.6	8289	3.4
York	3443	2.2			219	1.2	763	2.7			385	3.1	79	0.8	290	5.0	164	2.7	5343	2.2
Lancaster	3540	2.3			88	0.5	104	0.4	359	29.0	35	0.3	1115	11.9	17	0.3	7	0.1	5265	2.2
Reading	4031	2.6			248	1.4	851	3.1			53	0.4	265	2.8	159	2.8			5607	2.3
Allentown	6740	4.3	366	9.2	293	1.6	1803	6.5			331	2.6	345	3.7	112	1.9			9990	4.1
Pottsville	2649	1.7					578	2.1			102	0.8	629	6.7	96	1.7			4054	1.7
Wilkes-Barre	5086	3.3	370	9.3			1984	7.1			873	7.0	209	2.2	381	6.6			8903	3.7
Scranton	2533	1.6			97	0.5	343	1.2			441	3.5	12	0.1	238	4.1	438	7.1	4102	1.7
Williamsport	2166	1.4	1194	29.9			219	0.8			16	0.1	222	2.4					3817	1.6
Rural*	31894	20.4	105	2.6	656	3.6	743	2.7	126	10.2	1023	8.2	291	3.1	351	6.1	611	9.9	35800	14.8
TOTAL	156469	100.0	3992	100.0	18287	100.0	27864	100.0	1238	100.0	12500	100.0	9345	100.0	5757	100.0	6141	100.0	241593	100.0

*Aggregate statistical data from those counties not within the fifteen Labor Market Areas are classified and recorded in the "Rural" category.

TABLE 20

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF VOCATIONAL EDUCATION GRADUATES BY LMA AND YEAR OF GRADUATION

LMA	YEAR						TOTAL	
	July 1, 1966 June 30, 1967		July 1, 1967 June 30, 1968		July 1, 1968 June 30, 1969			
	Number	%	Number	%	Number	%	Number	%
Philadelphia LMA	20815	27.7	23139	29.3	26130	29.8	70084	29.0
Pittsburgh LMA	18835	25.1	19138	24.3	21144	24.1	59117	24.5
Altoona LMA	1017	1.4	1072	1.4	1291	1.5	3380	1.4
Johnstown LMA	1971	2.6	2456	3.1	2775	3.2	7202	3.0
Uniontown LMA	1406	1.9	1225	1.6	1719	2.0	4350	1.8
Erie LMA	2268	3.0	2189	2.8	1833	2.1	6290	2.6
Harrisburg LMA	2520	3.4	2707	3.4	3062	3.5	8289	3.4
York LMA	1759	2.3	1760	2.2	1824	2.1	5343	2.2
Lancaster LMA	1895	2.5	1832	2.3	1538	1.8	5265	2.2
Reading LMA	1693	2.3	1742	2.2	2172	2.5	5607	2.3
Allentown LMA	2617	3.5	3408	4.3	3965	4.5	9990	4.1
Pottsville LMA	1354	1.8	1447	1.8	1253	1.4	4054	1.7
Wilkes-Barre LMA	2639	3.5	2903	3.7	3336	3.8	8878	3.7
Scranton LMA	1455	1.9	1211	1.5	1436	1.6	4102	1.7
Williamsport LMA	1535	2.0	1067	1.4	1215	1.4	3817	1.6
Rural *	11287	15.0	11621	14.7	12892	14.7	35800	14.8
TOTAL	75066	100.0	78917	100.0	87585	100.0	241568	100.0

*Aggregate statistical data from those counties not within the fifteen Labor Market Areas are classified and recorded in the "Rural" category.

TABLE 21

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION VOCATIONAL EDUCATION GRADUATES BY OCCUPATIONAL CATEGORY TYPE AND TRAINING AGENCY

OCCUPATIONS	TRAINING AGENCY																		TOTAL	
	PUBLIC SEC. SCH.		COMMUNITY COLLEGE		PRIVATE TRADE & TECH. SCH.		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH SCHOOLS		MDTA		STATE RETRAIN. ACT		2-YR. PROGS. IN 4-YR. COL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Engineer Aero							20	100.0											20	100.0
Engineer Chem.	186	68.4													67	24.6	19	7.0	272	100.0
Engineer Civil	317	83.9	51	13.5											10	2.6			378	100.0
Engineer Elect.	146	62.7	18	7.7	69	29.6													233	100.0
Engineer Indust.			5	14.7	29	85.3													34	100.0
Engineer Mech.	36	29.8	1	0.8	46	38.0					15	12.4			6	5.0	17	14.0	121	100.0
Engineer Metal	70	68.0	1	1.0	31	30.1									1	1.0			103	100.0
Engineer Sales	18	52.9													16	47.1			34	100.0
Engineer Other	70	7.0	161	16.0	174	17.3					9	0.9			417	41.5	173	17.2	1004	100.0
Scientists Agric.	532	75.6	16	2.3							17	2.4			139	19.7			704	100.0
Scientists Other	208	100.0																	208	100.0
Technician Desig.	21	3.5			586	96.5													607	100.0
Technician Elect.	2590	36.1	284	4.0	3063	42.6			120	1.7	88	1.2	19	0.3	975	13.6	45	0.6	7184	100.0
Technician Radio											2	100.0							2	100.0
Technician Survy.															90	100.0			90	100.0
Technician Other	466	75.8	5	0.8	108	17.6			31	5.0	5	0.8							615	100.0
Medical Diets.	272	100.0																	272	100.0
Medical Nurses			121	13.8							56	6.4			677	77.1	24	2.7	878	100.0
Medical Nur-Stud.											53	100.0							53	100.0
Medical Techs.	512	13.5	115	3.0	1556	41.1	40	1.1			650	17.2			693	18.3	222	5.9	3788	100.0
Med. Chir. & Thp.											11	100.0							11	100.0
Teachers Other			102	16.4											140	22.5	381	61.2	623	100.0
Soc. Scientist			36	55.4													29	44.6	65	100.0
Architects			29	65.9	15	34.1													44	100.0
Draftsmen	3592	53.1	156	2.3	1702	25.2			44	0.7	340	5.0			877	13.0	49	0.7	6760	100.0
Soc. & Welf. Wkrs.															57	100.0			57	100.0
All Other Profs.	40	0.3	884	7.7	827	7.2	8422	73.5			96	0.8	41	0.4	363	3.2	793	6.9	11466	100.0
Farm & Farm Wkr.	4087	98.6							2		58	1.4							4147	100.0
Mgr. & Officals	117	2.8	323	7.8	19	0.5	1605	38.6			32	0.8			767	18.5	1293	31.1	4156	100.0
Clerical Clerks	22341	85.0	223	0.9	101	0.4	2900	11.1	57	0.2	114	0.4			103	0.4	422	1.6	26261	100.0
Clerical Tellers									27	100.0									27	100.0
Clerical Cashier							458	100.0											458	100.0
Cler. Mac-Ops.	4828	47.5	195	1.9	75	0.7	4864	47.9			68	0.7	16	0.2			116	1.1	10162	100.0
Cler. Recepts.							806	100.0											806	100.0
Clerical Secrets.	37446	89.4	226	0.5	99	0.2	3170	7.6			81	0.2			86	0.2	789	1.9	41897	100.0
Clerical Shipper							82	29.2					199	70.8					281	100.0
Clerical Stenos.			339	6.3	41	0.8	3014	55.9			453	8.4			190	3.5	1354	25.1	5391	100.0
Clerical Store	281	64.7			13	3.0	120	27.6			11	2.5	9	2.1					434	100.0
Clerical Phones											1	100.0							1	100.0
Clerical Typists	14533	93.1	10	0.1	49	0.3	841	5.4			174	1.1							15607	100.0

TABLE 21-Continued

OCCUPATIONS	TRAINING AGENCY																		TOTAL	
	PUBLIC SEC. SCH.		COMMUNITY COLLEGE		PRIVATE TRADE & TECH. SCH.		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH SCHOOLS		MDTA		STATE RETRAIN. ACT		2-YR. PROGS. IN 4-YR. COL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Clerical Others	28375	95.3	125	0.4			872	2.9	76	0.3	279	0.9			51	0.2	10		29788	100.0
Sales ad Agents	7861	82.7	51	0.5	495	5.2	542	5.7			119	1.3			32	0.3	405	4.3	9505	100.0
Sales Demonstrat.	236	62.1			71	18.7	62	16.3			11	2.9							380	100.0
Sales Insurance							33	100.0											33	100.0
Sales all Others					5	20.0	20	80.0											25	100.0
Carpenters	1829	86.9	21	1.0	30	1.4			140	6.7	85	4.0							2105	100.0
Mason & Tile Sets	321	84.5			17	4.5			42	11.1									380	100.0
Electricians	723	65.3	14	0.5	517	19.6			81	3.1	261	9.9	44	1.7					2640	100.0
Cont. Machine Ops.	10	2.6	2	0.5	115	29.9					257	66.9							384	100.0
Painters & Paper	142	35.2			137	34.0			53	13.2	71	17.6							403	100.0
Plumbs&Pipefit	326	65.7	9	1.8					36	7.3	125	25.2							496	100.0
Struc. Mtl. Wrks.					78	29.5					186	70.5							264	100.0
Machinists	3347	74.5	74	1.6	60	1.3			164	3.6	850	18.9							4495	100.0
Blksmith & Forge											6	100.0							6	100.0
Boiler Maker											7	100.0							7	100.0
Millwrights											122	100.0							122	100.0
Sheet Metal Wkrs.	488	74.3	9	1.4					48	7.3	33	5.0	79	12.0					657	100.0
Tool & Die Makers	54	32.7			93	56.4					18	10.9							165	100.0
Mechanic Air & Hea.	194	13.5			1146	79.6					99	6.9							1439	100.0
Mechanic Aero	23	6.3			342	92.9					3	0.8							368	100.0
Mechanic Motor	5631	69.0	111	1.4	1202	14.7			89	1.1	1113	13.6	18	0.2					8164	100.0
Mechanaic of-Mach.	21	10.3			163	79.9					20	9.8							204	100.0
Mechanic TV&Rad.	486	47.6			331	32.4					204	20.0							1021	100.0
Mechanic Others	1153	45.8			1109	44.1					215	8.5	40	1.6					2517	100.0
Prints. & Typeset	330	43.0			339	44.2			97	12.6	1	0.1							767	100.0
Prints. Electro					86	100.0													86	100.0
Prints. Engrave.					48	100.0													48	100.0
Printers Press					9	81.8					2	18.2							11	100.0
Bakers	39	24.5			7	4.4					113	71.1							159	100.0
Cabinet Makers	910	94.0	6	0.6	3	0.3			15	1.5	34	3.5							968	100.0
Inspectors					88	100.0													88	100.0
Wtch. & Jewlr.					113	99.1					1	0.9							114	100.0
Linemen-Tgph&Pwr.					143	97.9					3	2.1							146	100.0
Optic.&Lens. Gr.					11	100.0													11	100.0
Patrn.&Model Mkr.	44	11.6			329	86.6					7	1.8							380	100.0
Station Engr.					29	100.0													29	100.0
Upholsterers	58	27.9			31	14.9					119	57.2							208	100.0
Craftsmen Nec.	297	23.8	42	3.4	134	10.7					128	10.2	649	51.9					1250	100.0
Opertv. Laundr.	12	40.0			3	10.0					15	50.0							30	100.0
Opertv. Mine											159	100.0							159	100.0
Opertv. Bucher.					123	38.7					195	61.3							318	100.0
Opertv. Sta. Op.					72	69.2			27	26.0	5	4.8							104	100.0

TABLE 21-Continued

OCCUPATIONS	TRAINING AGENCY																		TOTAL	
	PUBLIC SEC. SCH.		COMMUNITY COLLEGE		PRIVATE TRADE & TECH. SCH.		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH SCHOOLS		MDTA		STATE RETRAIN. ACT.		2-YR. PROGS. IN 4-YR. COL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Operative Tk&Tlr.					20	6.0					313	94.0							333	100.0
Operative Welder	802	27.3			809	27.6					1261	43.0	63	2.1					2935	100.0
Operative Knittr.	175	44.3											220	55.7					395	100.0
Operative Weaver													14	100.0					14	100.0
Operative Sewers	79	1.1			204	2.9			14	0.2	49	0.7	6677	95.1					7023	100.0
Operative Other	915	29.4			5	0.2			18	0.6	929	29.9	1245	40.0					3112	100.0
Service Police			8	100.0															8	100.0
Servc. Bartends.					163	100.0													163	100.0
Servc. Cooks	1222	78.4			73	4.7			30	1.9	234	15.0							1559	100.0
Servc. Fountain											13	100.0							13	100.0
Servc. Waiters	9	8.3									99	91.7							108	100.0
Servc. Kitchen											41	100.0							41	100.0
Servc. Att-Hosp.	1326	48.9			528	19.5					858	31.6							2712	100.0
Servc. Barbers											86	100.0							86	100.0
Servc. Charwome.					13	100.0													13	100.0
Servc. Cosmets.	1261	80.8									299	19.2							1560	100.0
Servc. Janitors	7	11.7			53	88.3													60	100.0
Servc. Prac-Nur.	3553	71.4	175	3.5	289	5.8					945	19.0	12	0.2					4974	100.0
Service Others	501	63.7	44	5.6	28	3.6	13	1.7	27	3.4	173	22.0							786	100.0
TOTAL	156356	64.7	3992	1.7	18287	7.6	27864	11.5	1238	0.5	2500	5.2	9345	3.9	5757	2.4	6141	2.5	241593	100.00

TABLE 22

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF VOCATIONAL EDUCATION GRADUATES BY OCCUPATIONAL SUB CATEGORIES (25) AND TRAINING AGENCY*

SUB CATEGORIES	TRAINING AGENCY																		TOTAL	
	PUBLIC SCHOOLS		COMMUNITY COLLEGES		PRIVATE TRADE & TECH SCHOOLS		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH SCHOOLS		MDTA		STATE RETRAINING ACT		2 YR. PROGS. IN 4 YR. COL. & UNIV.		PRIVATE JUNIOR COLLEGES			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Engineer Tech.	843	0.5	237	5.9	369	2.0					24	0.2			517	9.0	209	3.4	2,199	0.9
Natural Sci.	740	0.5	16	0.4							17	0.1			139	2.4			912	0.4
Tech. Excl. Med.	3,077	2.0	289	7.2	3,757	20.5			151	12.2	95	0.8	19	0.8	1,065	18.5	45	0.7	8,498	3.5
Medical Wks.	784	0.5	236	5.9	1,556	8.5	40	0.1			770	6.2			1,370	23.8	246	4.0	5,002	2.1
Teachers			102	2.6											140	2.4	381	6.2	623	0.3
Social Sciences			36	0.9													29	0.5	65	
Oth. Prof.&Tech.	3,632	2.3	1,069	26.8	2,544	13.9	8,422	30.2	44	3.6	436	3.5	41	0.4	1,297	22.5	842	13.7	18,327	7.6
Fmrs.&Farm Wks.	4,087	2.6							2	0.2	58	0.5							4,147	1.7
Managers&Props.	117	0.1	323	8.1	19	0.1	1,605	5.8			32	0.3			767	13.3	1,293	21.1	4,156	1.7
Cler. & Kindred	107,691	68.9	1,118	28.0	378	2.1	17,127	61.5	160	12.9	1,181	9.4	224	2.4	430	7.5	2,691	43.8	131,113	54.2
Sales Workers	8,097	5.2	51	1.3	571	3.1	657	2.4			130	1.0			32	0.6	405	6.6	9,943	4.1
Constr. Crafts.	4,351	2.8	46	1.2	894	4.9			352	28.4	985	7.9	44	0.5					6,672	2.8
Mtl.Wks.Ex.Mch.	3,889	2.5	83	2.1	153	0.8			212	17.1	1,036	8.3	79	0.8					5,452	2.3
Mechs&Repair	7,508	4.8	111	2.8	4,293	23.5			89	7.2	1,654	13.2	58	0.6					13,713	5.7
Print. Craftsmen	330	0.2			482	2.6			97	7.8	3	0.0							912	0.4
Other Craftsmen	1,348	0.9	48	1.2	888	4.9			15	1.2	405	3.2	649	6.9					3,353	1.4
Spec. Op. Total	814	0.5			1,027	5.6			27	2.2	1,948	15.6	63	0.7					3,879	1.6
Textile Occups.	254	0.2			204	1.1			14	1.1	49	0.4	6,911	74.0					7,432	3.1
Oth. Operatives	915	0.6			5				18	1.5	929	7.4	1,245	13.3					3,112	1.3
Protect Servs.			8	0.2															8	
Waiters,Cks.&Btd.	1,231	0.5			236	1.3			30	2.4	387	3.1							1,884	0.8
Oth. Serv. Wks.	6,147	3.9	175	4.4	883	4.8					2,188	17.5	12	0.1					9,405	3.9
Others NEC	501	0.3	44	1.1	28	0.2	13	0.0	27	2.2	173	1.4							786	0.3
TOTAL	156,356	64.7	3,992	1.7	18,287	7.6	27,864	11.5	1,238	0.5	12,500	5.2	9,345	3.9	5,757	2.4	6,141	2.5	241,593	100.0

TABLE 23

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF VOCATIONAL EDUCATION GRADUATES BY MAJOR OCCUPATIONAL CATEGORIES AND TRAINING AGENCY*

MAJOR OCCUPATIONAL CATEGORIES	TRAINING AGENCY																			
	PUBLIC SECONDARY SCHOOLS		COMMUNITY COLLEGES		PRIVATE TRADE & TECH SCHOOLS		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH. SCHOOLS		MDTA		STATE RETRAINING ACT		2 YR. PROGS. IN 4 YR. COLS. & UNIVS.		PRIVATE JUNIOR COLLEGES		TOTAL	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Prof.Tech.&Kin.	9,076	5.8	1,985	49.7	8,226	45.0	8,462	30.4	195	15.8	1,342	10.7	60	0.6	4,528	78.7	1,752	28.5	35,626	14.8
Fmrs.&Farm Wks.	4,087								2	0.2	58	0.5							4,147	1.7
Managers&Props.	117	0.1	323	8.1	19	0.1	1,605	5.8			32	0.3			767	13.3	1,293	21.1	4,156	1.7
Cler. & Kindred	107,804	68.9	1,118	28.0	378	2.1	17,127	61.5	160	12.9	1,181	9.4	224	2.4	430	7.5	2,691	43.8	131,113	54.2
Sales Workers	8,097	5.2	51	1.3	571	3.1	657	2.4			130	1.0			32	0.6	405	6.6	9,943	4.1
Crafts.&Kindred	17,426	11.1	288	7.2	6,710	36.7			765	61.8	4,083	32.7	830	8.9					30,102	12.5
Opers.&Kindred	1,983	1.3			1,236	6.8			59	4.8	2,926	23.4	8,219	88.0					14,423	6.0
Service Wks.	7,879	5.0	227	5.7	1,147	6.3	13		57	4.6	2,748	22.0	12	0.1					12,083	5.0
TOTAL	156,356	64.7	3,992	1.7	18,287	7.6	27,864	11.5	1,238	0.5	12,500	5.2	9,345	3.9	5,757	2.4	6,141	2.5	241,593	100.0

THE SUPPLY INFORMATION SYSTEM

This section briefly describes the computerized information system which contains the entire set of supply data used in this publication. An overview of this system allows the planner to observe what types of additional information he may obtain from the planning staff of the BVTCE.

Planners are encouraged to utilize this resource located in the Department of Education. As previously mentioned, State Departments of Education should be expected to provide specially developed planning data basic to their role in helping educational institutions to establish better planning capabilities or to cope with long-range planning problems.

The supply system uses as its unit of analysis the individual student. For each vocational education graduate, the following information is collected:

(1) County in which he received his training.

(2) Type of School he attended.

(3) Occupation for which he was prepared.

(4) The year in which training was completed.

A short explanation of each item of information collected should provide some knowledge of the type of information the planner could request from the supply system.

County. If graduates are classified by county, the computer program can print out a list of graduates for various geographic regions. For example, a list of graduates could be printed for a county, a labor market area, a state planning board region, or for any other geographic division in the state which is based on county boundaries.

In this study, graduates are assembled by labor market areas. If the planner wanted to know the number of graduates in the Harrisburg Labor Market, he would request a list of graduates from Cumberland, Dauphin, and Perry Counties.

Type of School. When graduates are classified by type of school, the planner can determine the relative contribution of each type of training institution. It should be noted that these statistics cannot be used to evaluate the quality or equate the output of one or more types of institutions. The statistics do, however, allow the planner to distinguish between secondary and postsecondary graduates.

Occupation. Each graduate of an occupational education program in the Commonwealth is assigned to an occupational category which appears in the supply-demand postures. This assignment is accomplished using the Dictionary of Occupational Titles and The U. S. Office of Education Instructional Program Code. This process is explained in Table 28.

Classifying graduates by occupations allows the planner to generate a list of graduates by one or more occupational categories. For example, if a list of all the operative and kindred workers is needed, the planner could request that the computer print out a list of all graduates in the Commonwealth who are classified in these occupations. The occupations which are in the operative and kindred category can be seen in Table 28. They include assemblers, welders, knitters, and truck drivers, etc.

Year. Identification of graduates by year of graduation allows the planner to detect trends within the performance of the various agencies. This classification also allows the state planners to insert each year the new supply of graduates. Currently, the system contains the output of graduates for three years. When the fourth year data is put into the computer system, more trends in the supply of graduates can be determined.

It should now be clear that much useful planning information is available for improving program planning decision-making at all levels. The selected statistics presented in this chapter have been derived using the supply system described here and the computer.

For our purpose, it is not necessary to outline the procedures used to design the system (i.e., key-punching, computer programs, computer capability, and data structure). This brief review of the supply system is nontechnical and is set forth only to provide planners an idea of what type information or statistics they may expect to find available for use in their own planning strategies.

What has been presented is a description of each variable in the supply system (i.e., county, school, year, etc). These can be combined to generate information using more than one variable. Tables 17 through 23 illustrate this point. One final example is given here to show what information might be obtained from the BVTCE.

A Sample Case Using the Supply System

Assume the following. A particular educational institution in the Philadelphia Labor Market Area is interested in starting a new program to train accounting clerks and bookkeepers. Using Table 8, the program planners note that the unmet demand for this occupational category is 1,972. Roughly speaking then, the unmet annual demand equals 1,972 divided by 3 or 658. Based on this information, he decides to come to the BVTCE for this "available" information they claim to have.

The planner might like to see the supply posture for accounting clerks and bookkeepers for the Philadelphia Labor Market Area. The BVTCE planner could use the computer system to generate the information found in Table 24. This shows the supply posture for the three-year period by county by type of training institution.

The planner then could raise the question, if this information represents the supply for three-years, are there any changes that might

indicate that some institutions in the Philadelphia Labor Market Area are either increasing or decreasing their program output. Using a third variable from the system; namely, the year of graduation, the BVTCE planner could provide him with the information found in Tables 25 through 27. These tables express the supply of graduates by county by type of training institution for each of the three years.

The information in these three tables would now answer the question about the increasing or decreasing number of graduates for each type of institution in the labor market. For example, he would clearly see the output of the private business schools in Philadelphia County for each year. This is taken from the appropriate box in each of the three tables and shown below.

Private Business Schools	
1966-67	261
1967-68	103
1968-69	115
Total	479

Similar information could also be generated for by the BVTCE staff member for any related occupation that the local level planner would like to review.

This sample case should demonstrate how any number of variables in the supply system can be assembled to provide information which fits the specific needs of the local level planner.

(The narrative concludes on page 103).

TABLE 24

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1969

DISTRIBUTION OF ACCOUNTING CLERKS & BOOKKEEPERS GRADUATED
IN THE PHILADELPHIA LMA BY COUNTY AND TRAINING AGENCY
FOR THE FISCAL YEAR ENDING JUNE 30, 1969

COUNTY	TRAINING AGENCY									TOTAL
	PUBLIC SECONDARY SCHOOLS	COMMUNITY COLLEGES	PRIVATE TRADE & TECH SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE & TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2 YR. PROGS. IN 4 YR. COLS. & UNIVS.	PRIVATE JUNIOR COLLEGES	
Bucks	1,003	25	0	0	0	1	0	0	0	1,029
	97.5	2.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	17.6
	19.8	33.3	0.0	0.0	0.0	11.1	0.0	0.0	0.0	
	17.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Chester	310	0	0	0	0	0	0	0	0	310
	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Delaware	738	2	0	26	0	0	0	0	0	788
	96.2	0.3	0.0	3.4	0.0	0.0	0.0	0.0	0.0	13.4
	14.6	2.7	0.0	4.8	0.0	0.0	0.0	0.0	0.0	
	12.6	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	
Montgomery	741	5	0	42	0	0	0	0	0	788
	94.0	0.6	0.0	5.3	0.0	0.0	0.0	0.0	0.0	13.4
	14.7	6.7	0.0	7.7	0.0	0.0	0.0	0.0	0.0	
	12.6	0.1	0.0	0.7	0.0	0.0	0.0	0.0	0.0	
Philadelphia	2,266	43	0	479	0	7	0	39	135	2,969
	76.3	1.4	0.0	16.1	0.0	0.2	0.0	1.3	4.5	50.6
	44.8	57.3	0.0	87.6	0.0	77.8	0.0	100.0	100.0	
	38.6	0.7	0.0	8.2	0.0	0.1	0.0	0.7	2.3	
TOTAL	5,058	75	0	547	0	9	0	39	135	5,863
	86.3	1.3	0.0	9.3	0.0	0.2	0.0	0.7	2.3	100.0

*Using the cell in row 1, column 1, an explanation of data presentation will be made.

	PUBLIC SECONDARY SCHOOLS
Bucks	1,003
	97.5
	19.8
	17.1

1. 1,003 = number of graduates from the public schools in Bucks County for the 3 yr. period.
2. 97.5% = row percentage. This indicates that for the 3 yr. period 97.5% of the graduates of the nine training agencies were from public schools.
3. 19.8% - column percentage. This indicates that for the 3 yr. period 19.8% of the public school graduates were from Bucks County.
4. 17.1% - total percentage. This indicates that for the 3 yr. period 17.1% of the graduates were from public schools in Bucks County.

TABLE 25

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1966 to June 30, 1967

DISTRIBUTION OF ACCOUNTING CLERKS & BOOKKEEPERS GRADUATED
IN THE PHILADELPHIA LMA BY COUNTY AND TRAINING AGENCY
FOR THE FISCAL YEAR ENDING JUNE 30, 1967

COUNTY	TRAINING AGENCY									TOTAL
	PUBLIC SECONDARY SCHOOLS	COMMUNITY COLLEGES	PRIVATE TRADE & TECH SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE & TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2 YR. PROGS. IN 4 YR. COLS. & UNIVS.	PRIVATE JUNIOR COLLEGES	
Bucks	386 95.3 23.1 19.2	18 4.4 25.5 0.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 0.2 14.3 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	405 20.2
Chester	83 100.0 5.0 4.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	83 4.1
Delaware	242 99.6 14.5 12.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 0.4 14.3 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	243 12.1
Montgomery	241 96.8 14.4 12.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	8 3.2 3.0 0.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	249 12.4
Philadelphia	717 69.9 43.0 35.7	43 4.2 70.5 2.1	0 0.0 0.0 0.0	261 25.4 97.0 13.0	0 0.0 0.0 0.0	5 0.5 71.4 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1,026 51.1
TOTAL	1,669 83.2	61 3.0	0 0.0	269 13.4	0 0.0	7 0.3	0 0.0	0 0.0	0 0.0	2.006 100.0

*Using the cell in row 1, column 1, an explanation of data presentation will be made.

	PUBLIC SECONDARY SCHOOLS
Bucks	1,003 97.5 19.8 17.1

1. 1,003 = number of graduates from the public schools in Bucks County for the 3 yr. period.
2. 97.5% = row percentage. This indicates that for the 3 yr. period 97.5% of the graduates of the nine training agencies were from public schools.
3. 19.8% = column percentage. This indicates that for the 3 yr. period 19.8% of the public school graduates were from Bucks County.
4. 17.1% = total percentage. This indicates that for the 3 yr. period 17.1% of the graduates were from public schools in Bucks County.

TABLE 26

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1967 to June 30, 1968

DISTRIBUTION OF ACCOUNTING CLERKS & BOOKKEEPERS GRADUATED
IN THE PHILADELPHIA LMA BY COUNTY AND TRAINING AGENCY
FOR THE FISCAL YEAR ENDING JUNE 30, 1968

COUNTY	TRAINING AGENCY									TOTAL
	PUBLIC SECONDARY SCHOOLS	COMMUNITY COLLEGES	PRIVATE TRADE & TECH SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE & TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2 YR. PROGS. IN 4 YR. COLS. & UNIVS.	PRIVATE JUNIOR COLLEGES	
Bucks	374 98.2 22.5 19.8	7 1.8 63.6 0.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	381 20.2
Chester	83 100.0 5.0 4.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	83 4.4
Delaware	241 95.3 14.5 12.8	0 0.0 0.0 0.0	0 0.0 0.0 0.0	12 4.7 9.2 0.6	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	253 13.4
Montgomery	245 92.5 14.8 13.0	4 1.5 36.4 0.2	0 0.0 0.0 0.0	16 6.0 12.2 0.8	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	265 14.0
Philadelphia	717 79.0 43.2 37.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	103 11.3 78.6 5.4	0 0.0 0.0 0.0	1 0.1 100.0 0.1	0 0.0 0.0 0.0	15 1.7 100.0 0.8	72 7.9 100.0 3.8	908 48.0
TOTAL	1,660 67.8	11 0.6	0 0.0	131 6.9	0 0.0	1 0.1	0 0.0	15 0.8	72 3.8	1,390 100.0

*Using the cell in row 1, column 1, an explanation of data presentation will be made.

	PUBLIC SECONDARY SCHOOLS
Bucks	1,003 97.5 19.8 17.1

1. 1,003 = number of graduates from the public schools in Bucks County for the 3 yr. period.
2. 97.5% = row percentage. This indicates that for the 3 yr. period 97.5% of the graduates of the nine training agencies were from public schools.
3. 19.8% = column percentage. This indicates that for the 3 yr. period 19.8% of the public school graduates were from Bucks County.
4. 17.1% = total percentage. This indicates that for the 3 yr. period 17.1% of the graduates were from public schools in Bucks County.

TABLE 27

PENNSYLVANIA MANPOWER AND TRAINING DATA
July 1, 1968 to June 30, 1969

DISTRIBUTION OF ACCOUNTING CLERKS & BOOKKEEPERS GRADUATED
IN THE PHILADELPHIA LMA BY COUNTY AND TRAINING AGENCY
FOR THE FISCAL YEAR ENDING JUNE 30, 1969

COUNTY	TRAINING AGENCY									TOTAL
	PUBLIC SECONDARY SCHOOLS	COMMUNITY COLLEGES	PRIVATE TRADE & TECH SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE & TECH. SCHOOLS	MDTA	STATE RETRAINING SCHOOLS	2 YR. PROGS. IN 4 YR. COLS. & UNIVS.	PRIVATE JUNIOR COLLEGES	
BUCKS	243 100.0 14.1 12.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	243 12.4
Chester	144 100.0 8.3 7.3	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	144 7.3
Delaware	255 94.1 14.7 13.0	2 0.7 66.7 0.1	0 0.0 0.0 0.0	14 5.2 9.5 0.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	271 13.8
Montgomery	255 93.1 14.7 13.0	1 0.4 33.3 0.1	0 0.0 0.0 0.0	18 6.6 12.2 0.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	274 13.9
Philadelphia	832 80.4 48.1 42.3	0 0.0 0.0 0.0	0 0.0 0.0 0.0	115 11.1 78.2 5.8	0 0.0 0.0 0.0	1 0.1 100.0 0.1	0 0.0 0.0 0.0	24 2.3 100.0 1.2	63 6.1 100.0 3.2	1,035 52.6
TOTAL	1,729 87.9	3 0.2	0 0.0	147 7.5	0 0.0	1 0.1	0 0.0	24 1.2	63 3.2	1,967 100.0

*Using the cell in row 1, column 1, an explanation of data presentation will be made.

	PUBLIC SECONDARY SCHOOLS
Bucks	1,003 97.5 19.8 17.1

1. 1,003 = number of graduates from the public schools in Bucks County for the 3 yr. period.
2. 97.5% = row percentage. This indicates that for the 3 yr. period 97.5% of the graduates of the nine training agencies were from public schools.
3. 19.8% = column percentage. This indicates that for the 3 yr. period 19.8% of the public school graduates were from Bucks County.
4. 17.1% = total percentage. This indicates that for the 3 yr. period 17.1% of the graduates were from public schools in Bucks County.

TABLE 28

OCCUPATIONAL CLASSIFICATIONS AND INSTRUCTIONAL PROGRAMS

DOT CODE	OCCUPATIONAL CLASSIFICATION	INSTRUCTIONAL PROGRAM	CODE
	PROFESSIONAL, TECHNICAL & KINDRED WORKERS		
	Engineers, Technical		
002	Engineers, Aeronautical	Aeronautical Technology	16.0101
008	Engineers, Chemical	Chemical Technology	16.0105
005	Engineers, Civil	Civil Technology	16.0106
003	Engineers, Electrical	Electrical Technology	16.0107
012	Engineers, Industrial	Industrial Technology	16.0111
007	Engineers, Mechanical	Mechanical Technology	16.0113
011	Engineers, Metallurgical	Metallurgical Technology	16.0114
010	Engineers, Mining	Mining Technology	16.0199
	Engineers, Sales	Sales Technology	16.0199
	Other Engineers, Technical	Technology Specialty	16.01
	Natural Scientists		
040	Agricultural Scientists	Agriculture Science	
041	Biological Scientists	Biological Science	
022	Chemists	Chemical Science	
024	Geologists & Geophysicists	Geological Science	
020	Mathematicians	Mathematical Science	
023	Physicists	Physical Science	
	Other Natural Scientists	Science Specialty	
	Technicians Excl. Medical & Dental		
017	Designers	Drafting	17.13
726	Electrical & Electronic	Electronic Technology	16.0108
193	Radio Operators	Ground Operations	17.0403
018	Surveyors	Engineering-Related Technology	16.01
	Technicians, Other	Miscellaneous Technical Education, Other	16.0699
	Medical, Other Health Workers		
079	Chiropractors & Therapists	Physical Therapy	
072	Dentists	Dentistry	
077	Dietitians & Nutritionists	Dietetics & Nutrition	
075	Nurses, Professional	Nursing	07.03
079	Nurses, Student	Nursing	07.03
079	Optometrists	Optometry	
071	Osteopaths	Osteopathy	
074	Pharmacists	Pharmacy	
070	Physicians & Surgeons	Medicine & Surgery	
045	Psychologists	Psychology	
079	Technicians Medical & Dental	Medical & Dental Technology	
073	Veterinarians	Veterinary Medicine & Surgery	
	Teachers		
092	Teachers, Elementary	Teacher Education	
091	Teachers, Secondary	Teacher Education	
099	Teachers, Other Excl. College	Teacher Education	
090	Teachers, College	Teacher Education	
	Social Scientists		
050	Economists	Economics	
020	Statisticians & Actuaries	Mathematics & Business Education	
059	Other Social Sciences	Social Science	
	Other Prof., Tech. & Kindred Workers		
160	Accountants & Auditors	Accounting	14.0101
001	Architects	Architecture	16.0103
017	Draftsmen	Drafting	17.13
110	Lawyers & Judges	Law	
166	Personnel & Labor Relations Workers	Personnel & Training	
195	Social & Welfare Workers (N.E.C.)	Social Sciences	
	Prof., Tech. & Kindred Workers		
421	FARMERS AND FARM WORKERS	Agriculture	
185	MANAGERS, OFFICIALS & PROPRIETORS	Management	
200	CLERICAL & KINDRED WORKERS	Office Occupations	14.000000
217	Accounting Clerks & Bkprs.	Bookkeepers	14.0102
212	Bank Tellers	Tellers	14.0105
211	Cashiers	Cashiers	14.0103
219	Office Machine Operators	Mach. Operators: Billing, Bkpng. & Computing	14.0104
232	Postal Clerks	Mail & Postal Clerks	14.0403
237	Receptionists	Receptionists & Information Clerks	14.0406
201	Secretaries	Secretaries	14.0702
222	Shipping & Receiving Clerks	Shipping and Receiving Clerks	14.0503

TABLE 28-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	INSTRUCTIONAL PROGRAM	CODE
202	Stenographers	Stenographers	14.0703
223	Stock Clerks & Storekeepers	Stock & Inventory Clerks	14.0504
235	Telephone Operators	Office Occupations	14.99
203	Typists	Typists	14.0902
209	Other Clerical & Kindred Workers	Office Occupations, Other	14.99
250	SALES WORKERS	Distributive Education	04.000000
258	Advertising Agents & Sales	Advertising Services	04.01
297	Demonstrators	General Merchandise	04.08
250	Insurance Agents & Brokers	Insurance	04.13
251	Real Estate Agents & Brokers	Real Estate	04.17
259	Stock & Bond Salesmen	Finance & Credit	04.04
	Other Sales Workers (N.E.C.)	Distributive, Other	04.99
	CRAFTSMEN, FOREMEN & KINDRED WORKERS		
	Construction Craftsmen		
861	Brickmasons, Stone, Tile	Constructing & Maintenance Trades, Other	17.10
860	Carpenters	Masonry	17.1004
820	Electricians	Carpentry	17.1001
850	Excavating, Grading Oprs.	Electricity	17.1002
840	Painters & Paperhangers	Operation, Heavy Equipment	17.100302
842	Plasterers	Painting & Decorating	17.1005
862	Plumbers & Pipefitters	Plastering	17.1006
866	Roofers & Slaters	Plumbing & Pipefitting	17.1007
899	Structural Metal Workers	Roofing	17.1010
		Metal Trades, Combined	17.2304
	Foremen (N.E.C.)	Foremanship, Supervision & Management Dev.	17.17
	Metalwkrg. Craftsmen	Metalworking, Other	17.2399
610	Blacksmiths, Forgemen, Hammermen	Metalworking, Other	17.2399
805	Boilermakers	Construction & Maintenance Trade, Other	17.1099
504	Heat Treaters, Annealers	Metallurgy	17.24
600	Machinists	Machine Shop	17.2302
638	Millwrights	Machine Shop	17.2302
804	Sheet Metal Workers	Sheet Metal	17.2305
601	Toolmakers, Diemakers	Tool & Die Making	17.2307
	Mechanics & Repairmen		
827	Air Conditioning, Heating & Refrig.	Trade & Industrial Occupation	17.000000
621	Airplane	Air Conditioning	17.01
620	Motor Vehicles	Aircraft Maintenance	17.0401
633	Office Machine Repairmen	Mechanics	17.0302
720	Radio & TV Repairmen	Business Machine Maintenance	17.06
	Other Mechanics & Repairmen	Radio/Television	17.1503
		Trade & Industrial Occupations, Other	17.99
	Printing Trades Craftsmen		
650	Composition & Typesetters	Graphic Arts Occupations	17.19
974-5	Electro & Stenotypers	Composition, Makeup and Typesetting	17.1901
971-2	Engravers & Lithographers	Lithography, Photography and Platemaking	17.1903
651	Pressmen & Plate Printers	Graphic, Other	17.1999
		Printing Press Occupations	17.1902
	Other Craftsmen & Kindred Workers		
526	Bakers	Trade & Industrial Occupations	17.000000
660	Cabinetmakers	Baker	17.2901
921	Cranesmen, Derrickmen, Hoistmen	Mill Work & Cabinetmaking	17.3601
168	Inspectors	Operation, Heavy Equipment	17.100302
700	Jewelers, Watchmakers, Gold & Silversmiths	Maintenance, Heavy Equipment	17.100301
821	Linemen & Servicemen	Watchmaking and repair	17.2102
628	Loom Fixers	Linemen	17.1402
711	Optician, Lens Grinders & Polishers	Textile Production & Fabrication, Other	17.3399
777	Pattern & Model Mkrs. Except Paper	Instruments (other than watches & clocks)	17.2101
950	Stationary Engineers	Woodworking, Other	17.3699
780	Upholsters	Stationary Energy Services Occupations	17.32
	Craftsmen (N.E.C.)	Upholstering	17.35
		Trade & Industrial Occupations, Other	17.99
	OPERATIVES & KINDRED WORKERS		
	Apprentices	Trade & Industrial Occupations, Other	17.99
739	Assemblers	Trade & Industrial Occupations, Other	17.99
720	Checkers, Examiners & Inspectors	Trade & Industrial Occupations, Other	17.99
906	Deliverymen, Routemen, Cab Drivers	Transportation	04.19
502	Furnacemen, Smeltermen & Pourers	Foundry	17.2301
504	Heaters, Metal	Metal Working	17.23
361	Laundry & Dry Cleaning	Laundry & Dry Cleaning	17.1602-.1601
939	Mine Operatives, Mine Laborers (N.E.C.)	Trade & Industrial Occupations, Other	17.99
316	Meat Cutters, Excl. Slaughter & Packing House	Meat Cutter	17.2903
952	Power Station Operators	Stationary Energy Sources Occupations	17.23
904	Truck & Tractor Drivers	Trade & Industrial Occupations	17.99
819	Welders & Flame Cutters	Welding and Cutting	17.2306
580	Semiskilled Textile Occupations	Textile Production & Fabrication, Other	17.3399

TABLE 28-Continued

DOT CODE	OCCUPATIONAL CLASSIFICATION	INSTRUCTIONAL PROGRAM	CODE
685	Knitters, Loopers, Toppers	Textile Production & Fabrication, Other	17.3399
689	Sewers & Stitchers, Mfg.	Textile Production & Fabrication, Other	17.3399
682	Spinners, Textile	Textile Production & Fabrication, Other	17.3399
683	Weavers, Textile	Textile Production & Fabrication, Other	17.3399
	Other Operatives (N.E.C.)	Trade & Industrial Occupations, Other	17.99
	SERVICE WORKERS, PRIVATE HOUSEHOLD		
	SERVICE WORKERS, EXCL. PRIVATE HOUSEHOLD		
	Protective Service Workers	Public Service Occupations	17.28
373	Firemen, Fire Protection	Fireman Training	17.2801
375	Policemen, Marshals	Law Enforcement Training	17.2802
376	Guards, Watchmen	Law Enforcement Training	17.2802
	Waiters, Cooks & Bartenders	Quantity Food Occupations	17.29
312	Bartenders	Cook/Chef	17.2902
314	Cooks	Waiters/Waitresses	17.2904
317	Counter & Fountain Workers	Quantity Foods Occupations, Other	17.2999
311	Kitchen Workers (N.E.C.)	Waiters/Waitresses	17.2904
311	Waiters & Waitresses		
	Other Service Workers	Health Occupations Education, Other	07.99
355	Attendants, Hospital & Inst.	Barbering	17.2601
330	Barbers	Custodial Services	17.11
381	Charwomen & Cleaners	Cosmetology	17.2602
332	Hairdressers & Cosmetologists	Custodial Services	17.11
382	Janitors & Sextons	Practical (Vocational)Nursing	07.0302
354	Practical Nurses		
359	Other Service Workers (N.E.C.)		
	LABORERS, EXCLUDING FARM & MINE	Trade & Industrial Occupations, Other	17.99

N.E.C. - Abbreviation for Not Elsewhere Classified.

DOT CODE - It should be noted that certain occupational titles do not have corresponding codes. This was due to an inadequate interpretation of descriptions found in the U.S. Department of Labor, Dictionary of Occupational Titles, Third Edition, Volume II. Washington: U.S. Government Printing Office, 1965.

OCCUPATIONAL CLASSIFICATIONS - These were based upon the occupational categories found in the publication, 1960 Census and 1970, 1975 Total Employment by Occupation, by Residence, by State, by Major Areas and Counties in Major Areas, and Selected Smaller Areas, Harrisburg, Pennsylvania: Department of Labor and Industry, Bureau of Employment Security, Research and Statistics Division, Labor Market Information Section, January 1969.

INSTRUCTIONAL PROGRAM AND CODE - Corresponding programs and codes for occupational titles were based upon descriptions found in the U.S. Office of Education publication, Vocational Education and Occupations, Washington: U.S. Government Printing Office, July 1969. These are not necessarily to be construed as exact one to one relationships but rather are inferential relationships based upon the interpretation of the descriptions of instructional programs and occupational titles.

> Vocational Education and Occupations can be considered as a mediator between vocational technical education programs and occupations. An intent of the publication is to provide input for designing curriculum and for planning educational facilities in relation to Labor Market needs in selected occupational categories. In addition, it attempts to provide for summarizing information concerning occupational manpower resources and requirements, as well as for guidance and counseling of youth and adults in making appropriate career and vocational choices. (Vocational Education and Occupations, 1969, p.v.)

All Instructional Programs pertain to occupational programs for the following educational institutions: (1) Public Secondary Vocational and Technical Schools, (2) Community Colleges, (3) Private Trade and Technical Schools, (4) Private Business Schools, (5) State Trade and Technical Schools, (6) Manpower Development Training Programs, (7) State Retraining Programs, (8) Two-Year Programs in Four-Year Colleges and Universities, and (9) Private Junior Colleges.

CONCLUDING REMARKS

The purpose of this publication has been to improve upon the labor market information currently available for planning vocational education programs at the local and regional levels. This has been accomplished by using the methodology set forth in the PVES to (1) update supply-demand data by including statistics on all labor markets for the three-year period ending June 30, 1969 and (2) to publish supply-demand information on a labor market area basis as well as for the statewide distribution.

It has been emphasized that services of the Division of Vocational Planning of the Bureau of Vocational, Technical and Continuing Education are available to local level planners interested in securing additional information about comprehensive long-range planning.

The extensive use of labor market information as well as the planning of vocational education on a labor market or regional basis might be considered an innovative step in program planning. For this reason we conclude this publication with a timely comment on the risks of innovation which were well understood by Machiavelli. He described them in "The Prince" as follows: "There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things, because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new."